A Clinical Lecture
ON
TUMOURS OF THE BLADDER.

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BY P. J. FREYER, M.A., M.D., M.CH. R.U.I.,
SURGEON TO ST. PETER'S HOSPITAL; EXAMINER IN SURGERY AT THE UNIVERSITY OF DURHAM.

GENTLEMEN,—Tumours of the bladder may occur either as *primary* or *secondary* growths. The former alone are of practical importance to the surgeon and in the following remarks I shall deal exclusively with them.

Tumours of the bladder, like tumours in any other region of the body, may be classified most conveniently according to the tissue from which they have their origin or of which they are composed: (1) epithelial tumours; (2) connective tissue tumours; (3) dermoids; and (4) cysts. Those of the latter two groups are rarely found in the bladder and require merely passing notice. New growths of the first group are those most frequently encountered and they demand particular attention. Of these, the most important—as most common and most amenable to treatment—is the papilloma, of which there are two typical forms: (1) villous papilloma and (2) fibro-papilloma.

FIG. 1.

Papillomata of the bladder have their origin apparently in an overgrowth of the normal mucous membrane and are analogous to the cutaneous warts. The type of papilloma most frequently met with is the pedunculated "villous papilloma" (Figs. 1, 2, 3, and 4) which consists of a fleshy mass, varying generally in size from that of a cherry to that of a walnut, attached to the bladder wall by means of a pedicle and covered partially or wholly by villous processes or papillæ, from which the tumour derives its designation. If we immerse a typical specimen of this kind in water immediately after removal and examine it we find that the pedicle terminates in an expansion named the "core" or "framework," which is clothed by villi projecting from its surface and giving the whole a shaggy, flocculent appearance of greyish-white colour. If we then lift it out of the water and examine it in air we find that the villous processes have collapsed and adhere, the tumour resembling a mass of wet grey velvet or a miniature deck-mop. Viewed through the cystoscope in the bladder before removal the villi, or fimbriæ when long, influenced by the artificial currents set up by the movements of the instrument, are seen to wave about in the fluid, the growth as a whole presenting a bright pink appearance, of rare beauty sometimes, due to the blood circulating in the villi being visible through the almost translucent structure. Occasionally hæmorrhagic spots, or even ulcers, may be seen, the result of contusions.

Directing attention now to the component parts of a papillomatous growth, we find that the pedicle may be either cylindrical or somewhat flattened. It varies in length, as a rule, from a quarter of an inch to one inch, but occasionally attains to several inches. It varies in thickness from that of a slender thread to that of a cedar lead-pencil, the very fine variety being rare. This pedicle is composed mainly of connective tissue, interspersed with which are found unstriped muscular and elastic fibres derived from the submucosa, the surface being covered by epithelial cells similar to those found in the bladder. Vessels and nerves pass through its axis. The pedicle is attached to the mucous covering of the bladder alone, and when pulled on the latter is raised off the muscular coat in pyramidal fashion. There is no infiltration of the adjacent mucous membrane or submucous tissue—a point of vital importance in distinguishing this growth from those of a malignant type.

The structure of the core, or body of the tumour, is similar to that of the pedicle, of which it is, indeed, merely an expansion. Frequently the framework is merely a prolongation of the pedicle, covered with tufts of villi; and occasionally there is little or no body, the tufts of villi springing directly from the end of the pedicle, the whole resembling a pollard tree. The body, again, may be lobulated, composed of several distinct, more or less rounded masses, each covered by short thick-set villi, the whole presenting a cauliflower-like appearance. Indeed, innumerable varieties of this tumour, as regards shape, number, and attachment of the villi, are found.

The villosities covering the surface of the growth vary much in length and shape. Some are so short as to be recognisable only by a hand lens. These short, thick, compactly set villi may give the tumour a velvety appearance. Other long and slender fimbriæ may reach a length of one or two inches and are more sparsely arranged. Between these extremes all varieties of villi are found. They may spring from the tumour as simple thread-like cylinders or as miniature flattened blades of grass. Some bifurcate, others digitate, or they may branch and rebranch like a tree. Portions of the surface of the tumour may be devoid of villi, giving it a bald appearance in patches. Hæmorrhagic spots or ulcers may be present from traumatism, and deposits of phosphates may take place on its surface, particularly on, and in the vicinity of, the ulcers. Microscopically an individual villus is found to be composed of delicate connective tissue, covered by layers of columnar epithelial cells, and traversed by a capillary loop

FIG. 2. FIG. 3. FIG. 4.

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of blood-vessel. Isolated fibres of unstriped muscle, continued from the core, are sometimes found entering the base of the villus for a short distance.

When a tumour is attached to the bladder wall by means of a pedicle it is termed "pedunculated," and this is the most common variety. It may, however, spring from the mucous membrane by a broad base, without the intervention of a pedicle, when it is termed "sessile." If the base or attachment of the tumour be contracted, forming a neck, the term "subsessile" is applied. Sometimes the simple villi spring directly from the mucous covering of the bladder, either in clumps or scattered broadcast over an extensive surface without the intervention of any body or core—a condition which may be described as "diffuse" papilloma. When the villi are arranged on ridges or crests of mucous membrane the term "coronoid" is sometimes employed.

Though papillomata may arise from any portion of the mucous membrane of the bladder, except, perhaps, the trigone, they are most frequently found in the vicinity of the ureteral openings. In my own practice I have found them most commonly attached to the bladder wall to the outside and in front of the ureteral orifices. Instances of benign papillomata growing solely from the trigone are extremely rare, if ever found. I have not met with an instance of this kind in my own practice. But springing from the mucous membrane close to the trigone the base of the tumour not infrequently encroaches by growth on that area. The exemption of the trigone from growths of this nature is attributed to the fact that the mucous membrane of this area is firmly bound down to the subjacent muscular coat without the intervention of any loose areolar tissue. Laxity of the mucous membrane seems to be essential to the development of these soft villous tumours. Papillomata spring occasionally, though rarely, from the inner orifice of the urethra.

Papillomata, whether sessile or pedunculated, vary in size from that of a pea to an enormous mass almost filling the bladder. The largest which I have removed was of the size of an orange and was attached to the outer edge of the left ureteral orifice by a pedicle an inch long and as thick as a goose-quill. This was in a patient sent by Dr. J. W. Erskine of Chelsea, who was present at the operation in June, 1897. The symptoms, which were not severe, had existed for only two years. On the other hand, a papilloma may be of extremely slow growth and, though small in size, may give rise to very grave symptoms. On June 20th, 1899, I removed a pedunculated papilloma of the size of a cherry (Fig. 3) from a patient, aged 36 years, sent by Dr. J. J. C. Constable of Kennington Park. This gentleman had suffered from hæmaturia for 18 years, and at the time of operation was extremely anæmic from constant loss of blood. There has been no recurrence and the patient is now in sound health.

Papillomatous tumours occur singly in the vast majority of cases. When multiple the number, as a rule, does not exceed three or four. Occasionally numerous growths are found scattered over the surface of the bladder. In cases of multiple growth there is generally a largish tumour with one or more subsidiary growths. It has been suggested—without any tangible proof, however—that the subsidiary growths are derived as seedlings from the main growth.

There are instances on record of spontaneous detachment of a pedunculated papilloma. This accident probably occurs through spasmodic contraction of the bladder on the tumour, thus rupturing the pedicle, or through twisting of the pedicle on itself, giving rise to strangulation and death of the tumour owing to the cutting off of the blood-supply. Papilloma is most frequently found between the ages of 25 and 50 years, though it may occur in childhood or in old age. Males are more frequently affected than females.

A pedunculated growth may from time to time be carried during the urinary flow against the neck of the bladder, or even into the prostatic portion of the urethra, and block the passage, thus giving rise at first to hypertrophy to overcome the resistance but eventually to atrophy and pouching of the walls of the bladder. Cystitis is not an infrequent sequela of the presence of a tumour in the bladder. A growth, whether pedunculated or sessile, growing close to, or from, the margins of a ureteral opening may block the canal and thus give rise to dilatation of the ureter with other backward pressure changes resulting in destruction of the corresponding kidney.

Papillomata are occasionally found devoid of elongated fimbriæ, consisting of more or less dense fleshy masses covered by extremely short thick-set papillæ, giving the general contour of the tumour a more or less smooth, though sometimes lobulated, appearance. These are termed "fibro-papillomata." Structurally they are composed of the same elements that enter into the villous papillomata but more densely arranged. Tumours of this type are, as a rule, sessile, slower in their growth, and do not attain the large size of the fimbriated papillomata.

When a growth is recognised by the cystoscope to be covered by villi we must not at once come to the conclusion that it is necessarily of a benign type, for malignant tumours are sometimes clothed with villi and these growths may occur as more or less pedunculated tumours. It is characteristic of a benign growth that there is no hardness about its base or pedicle and that the mucous membrane in its vicinity is soft and devoid of infiltration. The existence of hardness of the base or infiltration in the adjacent mucous membrane at once arouses suspicions of malignancy.

Intermediate between the typically benign papillomata and malignant tumours comes a type known as "transitional." Tumours of this nature on first removal present all the appearances of simple growths, both macroscopic and microscopic, save that the ground-work is more dense and irregular, and the "presence in it of irregularly shaped cells which do not belong to normal tissue on the one hand, or to distinct new growths on the other" (Heneage Gibbs). Tumours of this type have a tendency to recur after removal, becoming more and more fleshy, with infiltration of the surrounding mucous membrane on each recurrence, the patient eventually dying from undoubted cancer. A typical case of this kind occurred in a lady, aged 54 years, sent to me by Mr. W. Armstrong of Buxton. The tumour (Fig. 5),

FIG. 5.

which was sessile and of the size of a large walnut, showed no signs of malignancy on first removal, but it recurred, and after being four times removed, together with the adjacent mucous membrane from the vicinity of the left ureteral opening, eventually recurred as carcinoma on the right side of the bladder, to which the patient succumbed.

Adenomata rarely if ever occur in the bladder, as might be expected, seeing that it is doubtful if true glands exist in its mucous membrane. In the few instances that have been placed on record by writers the tumours were found in the vicinity of the neck of the bladder. There is nothing in the descriptions of these cases to indicate that they were other than adenomata of the prostate, projecting into the bladder. In my recent practice of total extirpation of the prostate I have found that barnacle-like adenomatous outgrowths of the prostate may appear in the bladder at a considerable distance from that organ, connected therewith by long, slender, fibrous pedicles, or "runners," lying beneath the mucous membrane. These might easily be mistaken for adenomatous tumours of the bladder.

Epithelioma, or squamous-celled cancer, as a primary disease of the bladder is not uncommon, ranking next in frequency of occurrence after papilloma. It occurs in the latter half of life, being extremely rare before the age of 40 years.

It has its origin in the mucous membrane and may commence as a warty outgrowth, a simple fissure, or an irregular ulcer. In whatever form arising the disease advances rapidly, spreading over an extensive area of mucous membrane and invading the underlying tissues. Large, elevated, fungating masses and hard nodules soon project into the bladder, sloughs are thrown off, accompanied by fœtid discharges, and life is rapidly destroyed through loss of blood, infection of the lymphatic system, as well as from the pain and constant distress due to frequency of micturition and perpetual straining, the bladder being unable to retain more than a small quantity of urine. The glands affected are the pelvic, retro-peritoneal, inguinal, and lumbar. Secondary deposits in other organs are, however, rare. As already stated, a cancer may have villi projecting from its surface; it is then termed a "villous carcinoma." In the later stages of the disease an epithelioma of the bladder may ulcerate into the bowel, a fistula being thus established and fæces passing through the urethra and urine by the rectum. Or it may appear in the groin, causing pressure on the nerves and vessels and giving rise to severe pain and œdema in the corresponding lower limb. It may make its way through the sacro-sciatic foramen and involve the sacral nerve.

Tumours of the connective-tissue type are of rare occurrence in the bladder.

1. *Fibroma.*—This tumour, though nearly allied in structure, must not be confounded with the fibro-papilloma already described. The latter has its origin in the mucous membrane, whereas the fibromata spring from the submucosa or fibrous tissues in the muscular coat and have the mucous membrane simply stretched over, but not involved in, the growths. The fibromata are rarely pedunculated, being usually sessile, or subsessile, polypoid outgrowths, and they are usually single. They are almost invariably found in adults. As a rule, they spring from the base of the bladder, but the only instance of this tumour that I have met with in my practice sprang from the summit of the bladder near the orifice. It was of the size and shape of the adult thumb and hung down over the neck of the bladder, obstructing the urinary flow. Fibromata are composed of adult connective tissue, with a few elastic fibres and fusiform cells interspersed. They are smooth-surfaced and on section present a white, glistening appearance.

2. *Myxoma.*—The myxoma, closely allied to the fibroma, is the soft, gelatinous, mucous polypus, similar in structure to the nasal polypus except that the covering epithelium is squamous. It is, as a rule, composed of a soft, gelatinous, proteid substance, identical with that found in the umbilical cord; but some varieties are harder, containing a considerable admixture of normal fibrous tissue. Growths of this type occur only in young children and may be either sessile or pedunculated. They are generally multiple.

3. *Myomata.*—These are composed mainly of unstriped muscle fibres, interspersed with scanty fibrous tissue. They are of extremely rare occurrence. They have their origin in the muscular coat of the bladder and may project inwards, forming "intra-vesical" sessile or pedunculated growths, loosely covered by the mucous membrane. They may remain "interstitial," or project outwards from the surface of the bladder, covered by the peritoneum, forming "para-vesical" tumours. When growing inwards they rarely attain a large size and are easily enucleated. The largest intra-vesical growth of this kind on record, as far as I am aware, occurred in my practice. The patient and tumour were shown at a clinique in the Medical Graduates' College and Polyclinic on Jan. 15th, 1902. The details of the case have been already reported [1] and briefly are as follows.

A married female, aged 24 years, had suffered from hæmaturia, increased frequency of micturition, and stoppage of the flow of urine for four years, with a tumour gradually increasing in size and eventually projecting into the anterior portion of the vagina. When she first came under observation in October, 1901, the tumour was as large as a cricket ball. It projected into the vulva and was covered by the anterior wall of the vagina which was pushed down before it. With a finger in the vagina and a hand placed above the pubes the tumour could be rolled about a fixed point in the left half of the pelvis. The patient had to push it up from the vulva before micturition which sometimes required the catheter. Cystoscopy revealed a large, smooth, globular, sessile tumour of the bladder, with large veins coursing over it, springing from the trigone and left side of the base of the bladder and in front of the left ureteral opening. On Oct. 30th, 1901, I opened the bladder suprapubically and snipped the mucous membrane over the tumour which was rapidly and easily enucleated. The patient made a rapid recovery, leaving St. Peter's Hospital within a month. She is now in excellent health, untroubled by any urinary symptom. The tumour weighed nine ounces and was found on microscopic examination to be a pure myoma.

4. *Sarcoma.*—This is the most common of the tumours of the connective-tissue type found in the bladder, but even this is rare in comparison with epithelial growths. It may occur at any age, arise in any part of the bladder, and is invariably sessile. It occurs as a smooth, dense, rapidly growing tumour, involving the entire thickness of the bladder wall. The round- and spindle-celled varieties are those most frequently found.

Other tumours of the connective-tissue type are of extreme rarity in the bladder.

SYMPTOMS AND DIAGNOSIS.

Hæmaturia is the most important, as it is almost invariably the earliest, symptom in all forms of tumour of the bladder. If a patient consults you for hæmaturia coming on spontaneously without apparent cause you should at once suspect the presence of a vesical growth, and if the hæmaturia be painless the growth will in all probability turn out to be benign. The hæmaturia is, as a rule, intermittent, the attacks lasting from one to several days and completely ceasing in the intervals. In the early history of the disease the intervals may be prolonged, weeks or even months elapsing before a recurrence of bleeding takes place, but as the disease progresses the attacks of hæmaturia increase in frequency and intensity. Eventually the urine may never be quite free from blood, though at times the bleeding will be more profuse than at others. The urine is not uniformly mixed with blood, as in hæmorrhage from the kidneys. During the act of micturition it will be noticed that the earlier portions of the urine will be clear and free from blood—at least, to the unaided eye—and that the stream gets gradually deeper in colour till eventually pure bright blood is passed. Occasionally the urine may be tinged with blood even at the commencement of micturition, but the tinge gradually deepens and some pure blood is invariably passed at the end. Clots are frequently present—dark and irregular masses contrasting with the worm-like clots found in connexion with renal hæmorrhage. The hæmaturia is generally independent of position and motion, occurring as frequently when the patient is sitting or lying down as when getting about, thus presenting a marked contrast with the bleeding attendant on stone, which is always worse when the patient takes exercise. Profuse hæmaturia is rare in connexion with stone, whereas with tumour it is the rule. The extent and frequency of the bleeding do not bear any proportion to the size of the tumour. A growth may attain a very large size before it is attended by hæmaturia and quite a small growth, as in the case of Fig. 3, may involve profuse and constant bleeding, endangering life. Soft growths, and particularly those clothed with villi, bleed more freely than the dense and bald varieties, and pedunculated more than sessile growths.

Increased frequency of micturition occurs sooner or later with all vesical growths, and once it sets in it never disappears till the tumour is removed. It is most marked in cases of growth situated near the neck of the bladder. Exceptionally it is the initial symptom and may exist for lengthened periods before hæmaturia supervenes. In the case of a lady, aged 53 years, whom I attended in consultation with Dr. W. H. Bourke of South Kensington, increased frequency of micturition (attended latterly by some scalding) had existed for two years, but there had never been any hæmaturia. The cystoscope at once revealed a pedunculated villous growth, of the size of a large strawberry, springing from near the right ureteral opening, which I successfully removed suprapubically. Two symptoms—viz., increased frequency and pain—are not uncommon in women who have passed middle life, and are, as a rule, due to pressure of the womb on the bladder. I was inclined to attribute the symptoms in this case to this cause, and it was only after Dr. Bourke had assured me that he had satisfied himself that this was not the case that I consented to examine the patient cystoscopically. This and other cases in my practice have taught me a lesson—viz., that when these symptoms are due to no apparent cause the cystoscope should be employed, even when hæmaturia is absent. The hæmaturia

[1] Journal of the British Gynæcological Society, vol. i., 1902.

and frequency of micturition due to non-malignant growths are in the earlier stages of the disease, as a rule, unattended by pain; but in malignant growths pain is present almost from the beginning.

Pain is nearly always present in the later stages of all kinds of tumour, due to a variety of causes, such as cystitis, passage of clots, blockage of the urethra by the growth, or pressure of the growth as it enlarges on the nerves. Sessile and infiltrating growths are more painful than pedunculated ones. The pain will, as a rule, be referred to the perineum, or as shooting along the whole urethra, in contrast with the pain of stone which is referred to the end of the penis and that of prostatic disease which is usually felt suprapubically.

Retention of urine, partial as a rule but occasionally complete, may occur, due to clots, fragments of tumour tissue, or even a pendulous growth itself blocking the urethra.

With these symptoms we may find detached *shreds of tumour tissue* in the urine, microscopic examination of which may give a clue to its nature, always bearing in mind that benign villosities may grow on a malignant base.

Pus in the urine will be present when cystitis occurs. This is rare in benign growths, particularly in the earlier stages, unless from septic instrumentation. It frequently occurs early in malignant growths and is always present in their later stages as a terribly painful and distressing complication.

Not infrequently the inflammation from cystitis extends along the ureters to the kidneys, giving rise to pyelitis, nephritis, and suppuration of the kidneys. Blockage of a ureter by the tumour may give rise to hydronephrosis; blockage of both ureters may cause anuria and uræmic symptoms. Rectal examination in the male and vaginal in the female will aid us in forming a diagnosis, but only in cases of malignant growths in which the base of the bladder may be felt nodulated and unyielding from infiltration of its walls, or in the case of large fibrous or myomatous growths arising in this position. A papillomatous benign growth, whether sessile or pedunculated, will not be felt per rectum. When the tumour attains a large size, whether malignant, fibrous, or myomatous, it may be felt bimanually by placing one hand above the pubes and a finger of the other hand in the rectum or vagina.

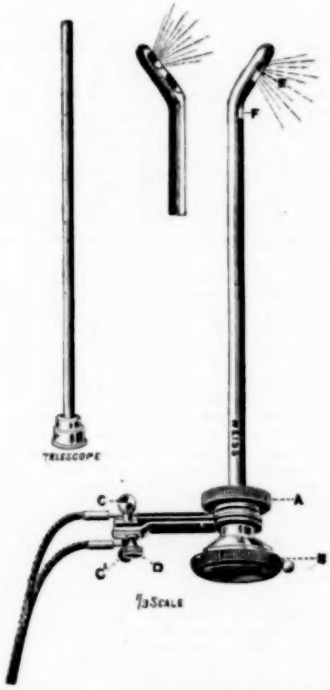
With the presence of the symptoms described a sound will probably be employed to ascertain if a stone be present in the bladder. No definite information as to the presence of a growth can be obtained by this means, though a sensation as of the existence of an undefined soft, or even tough, mass in the bladder, and limitations of the movements of the instrument, may lead us to suspect the presence of a tumour.

Washing out the bladder by means of an evacuator and catheter and the introduction of a lithotrite with a view to detaching and bringing away portions of the tumour for examination were formerly employed; but such methods have now been abandoned since the introduction of the electric cystoscope, which provides us with a scientific and accurate means of arriving at a definite diagnosis as to the presence of a tumour as well as to its size, physical characters, position, and form of attachment to the bladder wall, as also to a fairly accurate forecast as to its nature.

CYSTOSCOPY.

Leiter's cystoscope (Fig. 6), which is the instrument now almost universally employed for illumination of the bladder, consists of a metal tube, bent near the end at an obtuse angle, resembling somewhat a bladder sound in shape. The bent portion, or beak, consists of a cylindrical cap which can be screwed on and off the shaft at the elbow of the instrument and is furnished with an oval rock-crystal window (E) on the upper or concave aspect. Encased in this metal cap and situated opposite the window is a miniature electric lamp connected with the end of the shaft, through which, inside the metal tube, run insulated wires to the connecting screws (C, C'). By the detachable nature of the beak the lamp, when defective, can be replaced by a new one in a few seconds. The arrangement as a whole forms a water-tight compartment for the lamp which illuminates the bladder through the glass window without coming in contact with the fluid in which it must necessarily burn, in order to protect the bladder walls from injury. In the shaft, just above the elbow, is inserted a glass prism (F), by which the rays of light from the bladder are refracted along a telescope inserted in the shaft and capable of being removed for the purpose of being cleaned or for use in another instrument. The rim of the ocular end (B) through which the observer looks is covered by a thin plate of ebonite to prevent shock in case of contact of the eyebrows with the cystoscope. A knob (B) on the edge of the ocular end indicates the aspect of the bladder towards which the beak and prism are directed from

FIG. 6.



time to time. By means of a screw (D) the circuit can be closed and opened. This screw, together with the connecting screws, are carried on a rotatory plate, or swivel, so that with the finger and thumb of one hand placed on the cylinder (A), the beak of the instrument can be revolved so as to bring any part of the bladder into view, while the connecting cords remain in position, being held downwards by the other hand.

The standard cystoscope employed for adult males is in size 22 of the French scale: and with this a surface of three or four inches in diameter can be seen at one time. Cystoscopes are specially made larger, up to 40 of the French scale, for employment in females, giving a more brilliant illumination and bringing a larger surface into view at the same time. They are also constructed smaller for children, but the diminution in thickness of the instrument involves a rapid narrowing of the field of vision, as well as a darkening of the picture presented to the eye. Formerly, a second instrument was employed, with the window on the under aspect of the beak and a simple pane of glass in the convexity of the elbow, for the purpose of viewing the base of the bladder, and particularly the trigone; but this is now little used, as since the introduction of the swivel arrangement referred to all portions of the bladder can be brought into view by the instrument already described.

In cystoscopy the patient is most conveniently examined in the supine position on an ordinary operating-table, with his buttocks raised on a hard cushion and his legs slightly separated. The lithotomy position may also be employed and is, perhaps, best for females. As a rule a male requires an anæsthetic for careful and thorough examination, though sometimes this may be dispensed with, the urethra being locally anæthetised by means of cocaine. An

anæsthetic is rarely required for females who, as a rule, feel no pain or inconvenience from the examination.

A clear fluid medium is, of course, necessary to obtain a satisfactory view of the bladder and its contents. The best medium is the patient's urine, provided this be sufficiently clear; and this can frequently be attained by keeping the patient in bed for a few days previously to examination and directing him to retain his urine for three or four hour beforehand if possible. But if the urine be clouded with blood, pus, or muco-pus it will be necessary to wash out the bladder through a soft catheter by means of warm boric lotion or boiled water. This should be done very slowly and gently so as not to excite fresh bleeding. When the fluid flows quite clear from six to eight ounces should be introduced and left in the bladder. Glycerine should be employed for lubricating the catheter instead of oily substances which would adhere to the windows of the cystoscope and obscure the view. Some diseased bladders resent the introduction of more than three or four ounces of fluid even under deep anæsthesia; but even this quantity may suffice to give us important information.

The cystoscope should be examined beforehand to ascertain that it is in working order and that the illumination is of the proper strength. It is rendered aseptic by thorough washing with soap and warm water and immersion in warm carbolic lotion. It is then smeared with glycerine and introduced like an ordinary sound, very slowly and gently, to avoid even the slightest bleeding if possible, and pushed as far into the bladder as the rim will permit. Care should be taken that the light is well switched off before introduction of the cystoscope. The observer's eye is now applied to the ocular end and the light is switched on, when the bladder will suddenly appear illuminated. The beak being directed upwards, the first portion of the bladder that comes into view is the apex, and if a growth has its origin in this position, which is rare, it will be observed at once. If the medium be quite translucent the surface of the bladder will be seen as clearly as if it were exposed to broad daylight, corrugated more or less according to the quantity of fluid introduced, greyish-white, with the minute blood-vessels visible, the general appearance recalling that of the retina as seen through the ophthalmoscope.

A methodical survey of the bladder is now made. It is best in the first instance to bring the ureteral opening on one side into view and then that on the other side—small slit-like openings, placed obliquely, directed downwards and inwards, at the extremities of the inter-ureteral bar. These objects afford landmarks from which we take our bearings in surveying the bladder. In the vast majority of instances tumours if present will be found in their vicinity. The cystoscope should then be withdrawn till the prism approaches the neck of the bladder, the collar of which will be recognised by its dark crimson colour and smooth rounded edge, and a complete revolution of the beak slowly made in this position. Similarly the fundus is examined by pushing the cystoscope in as far as the rim will permit and revolving it in this position. The beak must not be allowed to remain in contact with the bladder wall at one point for more than a few seconds, for fear of scorching the mucous membrane, but kept constantly on the move, the light being periodically switched off for a few seconds to cool the lamp. Before withdrawal of the cystoscope from the bladder the light should be switched off for half a minute to avoid burning the urethra. To make assurance doubly sure in this respect I always detach the connecting cords from the instrument before its withdrawal. The fluid is then drawn off by a catheter, when the examination is completed.

It is impossible in a lecture of this kind to teach all the details necessary for a successful cystoscopic examination and a correct appreciation of the appearances observed. These can only be acquired by practice and are best learnt under the guidance of an experienced cystoscopist. It must be remembered that objects are observed reversed in position, and greatly magnified when close to the prism. The current is supplied from a small battery, an accumulator, or from the main through the medium of a transformer.

Should there be bleeding during the examination we may be unable to obtain a clear view, or merely for a short time, so that it may be necessary to withdraw the cystoscope and to wash out the bladder once more till the fluid runs clear. Should the bleeding still continue it will be necessary to postpone the examination to a future date, the patient being kept quiet in bed in the meantime and the re-examination undertaken when bleeding has quite ceased.

Apart from the diagnosis of tumours of the bladder, which may be regarded as the chief function of the cystoscope, it may be well to state here that this instrument is now employed in clearing up the nature of many other obscure diseases of the urinary track—viz., (1) hypertrophy of the prostate, to ascertain the extent and nature of the outgrowth in the bladder; (2) encysted calculus of the bladder; (3) tuberculosis of the bladder; (4) chronic ulcer of the bladder; (5) foreign bodies in the bladder; (6) hæmorrhage or discharge of pus from one or both ureters in various diseases of the kidneys; (7) stone impacted in the lower end of the ureter in its descent from the kidney; and (8) to ascertain the conformation of the ureteral openings in certain diseases of the kidneys, &c.

TREATMENT.

Though the hæmorrhage, pain, and other symptoms attendant on tumours of the bladder may be temporarily held in check by astringents and narcotics, administered internally or locally applied, the only line of treatment that offers a prospect of permanent relief consists in complete removal of the growth. Following the lead of Sir Henry Thompson, for some years after 1880 surgeons generally accomplished this by means of perineal cystotomy. I myself have removed several tumours through this route with considerable success. But this method has now for several years been practically abandoned in favour of operation through the suprapubic route, which possesses the advantages that not only can a more thorough survey of the bladder be made in this way by the finger, but by means of an electric forehead light and appliances that will presently be described the interior of this viscus and its contents can be brought into view, so that the tumour can be removed with greater precision than by the perineal route.

Suprapubic cystotomy.—The patient, previously prepared by shaving the pubes and applying an antiseptic compress over the pubes and hypogastrium, is placed on his back on the operating-table. The Trendelenburg position advocated by some surgeons is quite unnecessary. A rubber catheter is introduced, the urine is drawn off, and the bladder is thoroughly washed out with warm boric lotion by means of a six- or eight-ounce syringe. Petersen's bag for inflating the rectum previously to distending the bladder with a view to raising the peritoneum out of the way was formerly much in vogue. I constantly employed it for some years after its introduction, but have now entirely abandoned this adjunct to the operation as unnecessary for the purpose for which it was introduced and attended by inconvenience and considerable danger. It distorts the bladder out of shape, is liable to lacerate the mucous membrane of the bowel, and cases are on record where rupture of the bladder attended its employment. The bladder is simply distended with from 10 to 14 ounces of warm boric lotion and the catheter is left *in situ* with a clip forceps applied to prevent the lotion flowing out.

An incision of from two to three inches in length, according to the stoutness of the patient, is now made in the median line of the abdominal wall terminating at the symphysis pubis. This incision is carried at once through the skin and subcutaneous tissues as far as the muscles. Any bleeding vessels are clamped and the incision is continued either between the recti muscles or through one of them till the prevesical fat comes into view. The point of the forefinger is then introduced through the wound and passed down close behind the symphysis, the prevesical fat is scraped through by the finger-nail till the bladder is reached, and is drawn upwards off the bladder for the whole length of the wound—the peritoneum if extending low down being pushed up before it. As a rule, the peritoneum is not seen, being covered by the fat.

The bladder will now have come into view, presenting a greyish glistening appearance, with purple, gorged, tortuous veins coursing in its wall and visible on its surface. The scalpel is at once plunged through the bladder wall in the middle line, with its edge directed downwards towards the symphysis, and an incision an inch or one and a half inches long is made in this direction. Neither a sharp hook nor sutures inserted in the bladder, to hold it up in position, is necessary; but if the patient be stout retractors may be required to separate the edges of the wound in order to bring the bladder into view before incising it.

The knife is now withdrawn and laid aside and as the fluid rushes out the forefinger is introduced into the bladder, plugging the opening. If a tumour of considerable size be present it will be felt at once projecting into the fluid in the

distended bladder. The fluid is allowed to trickle away slowly by the catheter and the finger makes a methodical survey of the bladder, ascertaining the size, consistency, position, and mode of attachment of the growth, many of which particulars will have previously been recognised by the cystoscope.

Removal of the tumour.—A suitable tumour forceps (Figs. 7, 8, 9, and 10) is now introduced beside the finger, but before

FIG. 7.

FIG. 8.

FIG. 9.

FIG. 10.

doing so the bladder is distended with lotion through the catheter, which should be withdrawn till its end just reaches the inner orifice of the urethra, so as to be out of the way of the forceps. Keeping the point of the finger in contact with the tumour, the blades of the forceps are opened and the pedicle of the growth—if it be pedunculated—is grasped as near to the bladder wall as possible and the growth is twisted off. If the tumour be sessile forceps with broad serrated jaws (Fig. 7) will be necessary, by which the growth can be grasped flush with the mucous membrane of the bladder and removed partly by biting it away and partly by torsion. If the sessile growth be a large one it will have to be removed piecemeal, the forceps being introduced over and over again, the bladder being kept distended by an assistant throughout the manipulations; otherwise there would be danger of the rugose folds of the bladder getting nipped between the jaws of the forceps and thus injured.

When the tumour has been excised as far as possible in the manner indicated an ordinary glass Fergusson's vaginal speculum is introduced—the largest size that will readily pass through the incision in the bladder being employed—and directed on to the site of attachment of the growth. The lotion is allowed to flow away and any remaining fluid is mopped up by sponges introduced on holders through the speculum. An electric forehead lamp is employed to illuminate the bladder through the speculum. The distal end of the speculum being pressed firmly against the site of attachment of the growth and the fluid being thoroughly mopped up by sponges, the site of the growth is brought clearly into view by means of the electric forehead lamp. Any shreds of growth or nodules left behind will be observed in this manner and can be removed by forceps introduced through the speculum. The electric, or Paquelin's, cautery can also be introduced through the speculum to burn away the roots of the growth or to arrest hæmorrhage. Tincture of perchloride of iron can also be introduced on a sponge for the latter purpose. If the growth be sessile, and particularly if there be any doubt as to infiltration of the adjacent mucous membrane, the tumour may be grasped boldly by forceps and brought well up into the wound. This will be facilitated by an assistant placing his finger in the rectum and pushing the base of the bladder up towards the suprapubic wound. The mucous membrane of the bladder is incised all round the base of the growth but quite clear of it, and this together with the tumour is removed by broad serrated or cutting forceps (Figs. 7 and 10). It is unnecessary, and, indeed, inadvisable, to attempt to bring the edges of the mucous membrane together over the site of the tumour by sutures. It is difficult to introduce sutures at the base of the bladder. It is inadvisable to employ other than catgut sutures and they are absorbed too rapidly to be of any practical use; silk sutures should never be used, as they form nuclei for the formation of calculi. The tissues are so crushed by the forceps in the removal of the growth that it is doubtful if direct union could take place in any case. Healing of the wound takes place by granulation.

The bladder is now thoroughly irrigated by warm boric lotion through the catheter and out by the suprapubic wound till all clots are removed and the fluid flows away clear. A drainage-tube with two eyes cut in it on opposite sides at distances of about half an inch and one inch respectively from the end is introduced by means of forceps, so as to reach the base of the bladder. This should be sufficiently thick to fill the wound in the bladder, so that the whole of the urine may flow by this route and thus avoid its trickling beside the tube and entering the prevesical space. No object is gained by employing a narrow tube, as in practice it is found that the suprapubic wound heals as rapidly when a large tube is used; and a narrow tube has the disadvantage of allowing the urine to flow beside it, thus infecting the loose areolar tissue in the prevesical space, which in consequence would slough away in gangrenous masses, and of preventing clots from passing out of the bladder.

The abdominal wound is now brought together round the tube by means of three or four silkworm-gut sutures, which are passed through skin and muscle, and, finally, the drainage-tube is fixed in position by means of a superficial suture. Buried sutures should not be employed in suprapubic cystotomy, as they almost invariably get infected by urine and lead to suppuration. I never entirely close the bladder wound, invariably introducing a drainage-tube, but when for any reason the incision in the bladder is extensive I bring the wound partly together by catgut before introducing the tube. The drainage-tube is cut short half an inch from the superficial wound, cyanised gauze, well wrung out of boric lotion, is applied, and the front and sides of the abdomen are covered by large pads of cotton- or wood-wool. The dressings are changed every three or four hours as they become saturated with urine. I have tried appliances of all kinds for conducting the urine directly from the bladder to a receptacle beneath the bed, but have found

them one and all unsatisfactory, and I now employ only the simple method above described. The skin sometimes has a tendency to get irritated by the saturated dressings; at the earliest indication of this it should be protected by rubbing in lanolin or oxide of zinc ointment at each dressing after thoroughly washing and drying the surface. The drainage-tube is removed in three or four days, when plastic lymph will have been thrown out along its track and the tissues thus protected from infiltration of urine. The bladder should be irrigated through the drainage-tube daily, or more frequently if the tube gets blocked by clots, by warm boric lotion. After the tube is removed a soft catheter is introduced daily and the bladder is irrigated through this and out by the fistula. The sutures are removed on the seventh or eighth day, but should the temperature rise and the wound appear "angry" one or more sutures should at once be removed to give vent to pent-up fluids in the prevesical space. The fistula takes from a fortnight to a month to close as a rule.

When a malignant growth is so extensive that no attempt at its removal is desirable or practicable it may be necessary to open the bladder and to establish permanent drainage for the purpose of ameliorating the terrible pain and strangury that exist, particularly when general infective cystitis sets in, and so to allow the patient to pass away in comparative comfort. The perineal or suprapubic route is chosen, according to the nature and position of the growth, so as to afford free drainage and at the same time to avoid pressure of the tube on the growth.

Resection of that portion of the bladder wall involved in a malignant growth, and even of the entire viscus, has been undertaken—the ureters in the latter case being implanted in the rectum in the male or in the vagina in the female—hitherto, however, with but poor success. When the growth is confined to the apex of the bladder, where the resection can be performed extra-peritoneally by stripping off the peritoneum over an extensive area, I consider that the operation is not only justifiable but advisable. Unfortunately, however, these growths are rarely confined to this region. When involving the base of the bladder I consider any attempt at resection futile, and that if the patient does not succumb immediately to the shock and hæmorrhage attending the operation life is materially shortened thereby.

ON REFLEX CONVULSIONS IN GROWING BOYS AND GIRLS.

BY EUSTACE SMITH, M.D., F.R.C.P. LOND.,
SENIOR PHYSICIAN TO THE EAST LONDON HOSPITAL FOR CHILDREN; CONSULTING PHYSICIAN TO THE VICTORIA PARK HOSPITAL FOR DISEASES OF THE CHEST.

THE convulsive attacks so often seen in rickety or highly neurotic infants as a result of teething or other form of reflex irritation are familiar to everyone, but it is not so well known that similar nervous seizures, due also to pure reflex worry, may be found in children beyond the period of infancy and even as late as the eleventh or twelfth year. The children thus affected are usually members of families which show distinct neurotic tendencies although, perhaps, they may be free from the graver signs of nervous instability. The children themselves are highly strung, excitable, and easily moved to tears, but by no means necessarily spiritless or timid. They may have suffered from convulsions during infancy, but often their special nervous susceptibility is of later origin and seems to be quite independent of the rickety state in early childhood.

Occasional convulsive attacks in a child who has passed the period of infancy, and especially in one who is of an age to take regular lessons and to play at boisterous games, are often classed at once as "epileptic" and treated accordingly, but before labeling such a case as one of epilepsy it is wise to consider carefully all the circumstances of the attack with a view to discover some exciting cause to which the seizures may be referred. On inquiry we can often detect premonitory symptoms common to all the attacks and find that on each occasion the patient for some hours or days before the seizure had shown very obvious signs of ill-health. The seat of trouble is usually the alimentary canal and the irritation appears to be excited by the presence in the stomach and bowels of undigested and fermenting food. The children suffer almost invariably from languid circulation and cold feet. In consequence they have but little resisting power against the evil effects of damp and cold and sudden changes of temperature. When exposed to these influences they are liable to contract a more or less severe gastric or gastro-intestinal catarrh and the digestive turmoil thus engendered is often sufficient to throw the unstable nervous system off its balance.

As a rule the nervous attacks are separated by long intervals during which the health, although not, perhaps, quite satisfactory, for the nutrition is rarely good, yet presents no unusual features which seem to call for medical notice. In most cases they are single convulsive seizures which occur once and are not repeated in the same bout of illness; but sometimes they fall into groups or batches, the child having two or three in the 24 hours for several consecutive days. In other cases, again, the convulsive seizures are repeated frequently over a period of weeks. They then cease for a time to return in the same way after a longer or shorter interval. In the common case where the fits whenever they occur are preceded or accompanied by gastro-intestinal derangement the inference that there must be some connexion between the digestive trouble and the nervous commotion is obvious. The isolated attacks are probably purely reflex, as in the case of a teething fit; but when the seizures are repeated frequently day after day for weeks together the mechanism is probably less simple. The urine at these times is always very acid and I have thought that the absorption of acid formed in large quantity in the alimentary canal as a result of fermentation of food might tend to keep up the irritation of the nervous system or that the same result might be brought about by microbic infection from the bowel.

The special feature of these attacks lies in the fact that they invariably coincide either with a digestive disturbance or with some other form of local irritant and cease at once when the local condition is relieved. To produce its effect the local irritant need not be violent, but if mild its action must be sustained; indeed, the continued working of a mild irritant seems to produce a more striking effect than that of a more powerful stimulus which operates only for a short time. It would appear as if the endurance of the nervous system was gradually weakened more and more until the breaking point was reached and the fit occurred. This result is arrived at more quickly when the stimulus acts upon a system already in a state of disquiet. This is well seen in the case of adenoid growths in the naso-pharynx. Children who suffer from these vegetations often show symptoms of nervous unrest, and the addition of a post-nasal catarrh may be enough to determine the onset of convulsions. The irritation of hard scybalous masses acting upon a mucous membrane already in a state of catarrh may have the same effect; and even the strain upon the eye set up by hypermetropia and astigmatism will sometimes, I have reason to believe, under favourable conditions prove a cause of convulsive fits in neurotic subjects. The irritation of worms in the alimentary canal has been often said to be a cause of convulsions, but in my experience this consequence of parasitic irritation is rarely seen. The nervous breakdown is said to be more likely to occur in the case of lumbrici than in that of ascarides, but when it is found I am disposed to attribute the commotion less to the creatures themselves than to the gastro-intestinal disturbance which is always associated with them and by means of which they breed and develop. In all these cases the nervous seizure no doubt is as purely reflex as are the fits which arise from similar causes in susceptible infants, for such disorderly response to reflex stimuli may long outlast the period of babyhood and the rickety state. We may find it in schoolboys and schoolgirls and even in young adults, for there can, I think, be little doubt that many of the so-called "hysterical" attacks in young unmarried women are of this nature. In the common case where the fits are the outcome of a gastro-intestinal disturbance the account we generally get is that the child every few months has an attack of illness in which he lies about looking dull and listless, is perhaps feverish, loses his appetite, and may complain of nausea or try to vomit. The bowels are disordered—loose or constipated—and the tongue is thickly furred. In the midst of these signs of digestive derangement the child is suddenly taken with a mild fit; he loses consciousness and either twitches or lies with his body stiff in a tonic spasm.

The seizure may be repeated several times. After a few days the indisposition passes off and as the child regains his usual health the irritability of the nervous system also subsides.

In the year 1889 I saw with Dr. G. J. Crawford Thomson a little boy, aged five years. I was told that he had had fits ever since his first year and that for the last two years they had recurred every two months or so. The mother explained that as a rule the boy's health was fairly good but that for a week before the attack his complexion would turn ash-coloured and he would have dark lines under the eyes. He would be fretful in the day and restless at night; his bowels would be confined and his feet noticeably cold. The fits themselves were immediately preceded by a pain in the epigastrium and a rise of temperature. In the fit the boy lay perfectly motionless and quite unconscious. He usually had two or three in succession. Before the attacks the stools were clay-coloured, afterwards greenish and offensive. There was never any vomiting or diarrhœa. In this case the seizures were apparently the result of attacks of gastric catarrh. Treatment was conducted upon this assumption and measures taken to improve the circulation, combined with a careful diet and attention to the digestive organs, soon restored the child to a better state of health. Five years later I heard from Dr. Crawford Thomson that the boy was at school doing well and had had no relapse.

A little boy, six years of age, was brought to me in 1889 as he was said to suffer from convulsive fits. According to the mother's account the boy had had his first fit at the age of six months; when 12 months old, after an illness which was called "blood poisoning," he had had a second and similar seizure, and since that time the convulsions had been liable to return whenever the child's digestion was upset. At these times he became very irritable and cried a great deal and showed a patch of red on each cheek; his temperature rose, he slept badly, and his bowels were relaxed; then in the course of a day or two he would often become convulsed. In this way he was said to have had quite a dozen convulsive seizures. When in his ordinary health the boy was reported to be bright and active and very intelligent. When I saw him he was bright-looking enough, but his feet were very cold and his flesh was flabby; his colour, however, was good and careful examination could discover no sign of local mischief. In this case the attacks of gastro-intestinal derangement were put a stop to by diet and attention to the warmth of the boy's feet, combined with a regular morning douche of 70° F. following directly upon a hot sponging. The boy was seen 18 months later and there had been no return of the fits although he had had one mild attack of diarrhœa.

In the early part of 1901 I saw with Dr. E. J. Moore a boy, aged 10 years, who came of a highly neurotic family and was himself very fanciful and nervous. The boy had had adenoid growths removed in 1897. At that time he had been very anæmic and was subject to attacks of gastric catarrh, but by management and careful diet he had overcome this tendency in a great measure and was getting stronger and gaining colour. In February, 1901, the boy was much worried by a tender tooth and a few nights later, after a visit to a theatre, was taken in his sleep with a convulsive fit. For some weeks afterwards he remained in a highly nervous state suffering greatly from night terrors. In October of the same year he woke up suddenly one morning at 6 A.M. gasping for breath and fell into a fit in which he foamed at the mouth and was quite unconscious. The previous afternoon he had played football for two hours at his school and had seemed perfectly well on going to bed. In April, 1902, he had another fit which occurred like the last in the early morning and roused him from his sleep. His digestion at this time was disturbed, for he complained of nausea soon after the fit and said that "his inside felt all bubbling up." He continued to suffer from bad dreams and would often wake up at night crying out that he was choking. I examined this boy carefully on several occasions with Dr. Moore, but beyond a certain amount of indigestion and a tendency to constipation could find nothing amiss. Something, however, led us to suspect that he was straining his eyes, and this suspicion was confirmed by Mr. Ernest Clarke who ordered the patient glasses for hypermetropia and astigmatism. The boy began to use the spectacles in April, 1902, soon after the last fit. From that time he improved greatly in health and became, as they said, "a different boy." Nine months afterwards he was reported to be lively and merry, absolutely free from all terrors or nervous apprehensions, and sleeping soundly all the night through.

I cannot help thinking that in this case the relief from the strain upon the eyes is answerable in great measure for the improvement which happily occurred; and the boy's mother who watched him with the utmost care is convinced that it is so. The boy was evidently living in a state of extreme unrest and I could find nothing else to account for the flustered state of his nerves. It is, of course, too early as yet to say that the tendency to convulsive attacks has been overcome, but the improvement in the general health is so marked and the boy's nervous excitement has so completely disappeared that I shall be surprised if the seizures return. The boy was always bright and intellectually active and never had difficulty with his lessons. He had had no fits in infancy. At the time that the glasses were ordered he began to take a dose of strychnia solution (two minims) and liquid extract of ergot (20 minims) three times a day but the improvement was in my opinion too rapid to be attributed to the drugs.

A little boy, aged four years and eight months, was sent to me by Dr. Robert Allan. There was a neurotic family history on one side but the boy had not shown any definite sign of nervous disorder until March 5th, 1900, when without any warning he suddenly fell off his chair in a fit. Since that time the seizures had been repeated frequently. The attacks were of two kinds. He had regular fits in which the whole body was convulsed on both sides. These were of varying severity and occurred not only in the day but also at night and often took him in his sleep. As a rule he lost consciousness, but in the milder attacks he was sometimes thought to be conscious although his eyes had a fixed stare. The regular fits were mixed with others which were mere occasional and transient muscular contractions. They called these "jerks." In them a spoon or other object would be tossed suddenly from his hand, or his legs would give way beneath him and he would fall to the ground, but would rise again at once without any difficulty. When the boy was nervous or excited the "jerks" were almost incessant. They generally occurred every day; sometimes only once or twice, but often more frequently. One peculiarity of the case was that the attacks, both fits and "jerks," occurred in batches—so many days affected, so many free. Thus, no "jerks" occurred between the end of March and June, 1900; he then had them almost constantly for four days. Afterwards he was free again until September when he suffered in the same way for ten days. During all this time the severer attacks were occurring at intervals. Since October, 1900, all the attacks, both fits and "jerks," had occurred in groups, being present for two or three weeks and then absent for about the same period. When free during this time he had been free both from fits and "jerks."

I saw the boy for the first time on April 23rd, 1901. He was in fair condition with a good colour and his heart, lungs, and other organs were healthy. He suffered greatly from constipation and his stools consisted of very hard lumps covered with stringy mucus. They were evacuated with great difficulty and much jerking of muscles. This condition of the bowels had dated from the time of the first fit, since which event he was said never to have had a natural stool although before the fit the bowels had always been perfectly normal. Not long before his visit to me the boy had passed a quantity of lumbrici and ascarides but without any relief to his symptoms. He had never complained of abdominal pains or other kind of discomfort but since his illness, although perfectly intelligent and rational, he had from a cheerful, contented boy become peevish and irritable in his temper and very difficult to please. His feet were very cold and his circulation was said to be habitually languid. As the boy lay on the couch while I examined his abdomen he had frequent little jerks of his head towards the right side and slight twitching movements of his right hand. Now and again he would have a stronger jerk and occasionally he heaved a deep sigh. His pupils were normal and there was no nystagmus. The jerking movements were not at all like the irregular muscular contractions of chorea. As a rule they were isolated jerks and occurred only once or twice in the day or were even absent altogether for weeks at a time. It was only when the boy was at his worst, especially when nervous or excited, that the movements were repeated with any frequency. Sometimes, however, they were almost continuous and then his articulation would be difficult. The boy had already been

put upon a diet in which acids and acid-making foods were carefully restricted in amount and he was taking bromide with an occasional aperient.

In suggesting a remedy for this state of things I cannot say that I felt very hopeful of success, especially as the boy had been treated with so much judgment from the very beginning. It appeared to me, however, that the profuse mucous secretion from the bowels denoted a high degree of intestinal irritability and that the passage along it of hard scybalous masses could not but be a source of extreme irritation. I therefore advised that we should try to improve the circulation by a course of morning douches of the temperature of 75° F. given immediately after a hot bath, for if by this means we could reduce the boy's susceptibility to chills there would be a prospect of curing the intestinal catarrh and removing the worry from the bowels by a rigid diet and a succession of mild aperients. For medicine I suggested giving the liquid extract of ergot (20 minims) with liquor strychniæ (one minim) three times a day after food. I regard this combination as one of singular value in all forms of nervous irritability in the child. The bowels were to be kept regular by a nightly dose of liquorice powder. This treatment was carried out perseveringly by Dr. Allan The boy got a good reaction after his douche and his feet became warmer. Very soon he began to put on flesh and his nervous symptoms diminished. The fits and "jerks" still recurred at intervals but in a less severe form and the boy's spirits became brighter and his temper more placid. On Dec. 30th, 1901, Dr. Allan reported: "The boy has had no regular convulsion since July and no 'jerks' since September; he has gained weight and is happy and cheerful instead of irritable and cross. The bowels are kept regular by mild doses of liquorice powder, but still a little mucus passes occasionally." The last report, in December, 1902, stated that no further fits or "jerks" had been noticed, that mucus had ceased to appear in the stools, and that the boy attended school regularly and seemed to have completely regained his former good health.

In this case the results of treatment seem to leave little doubt that the nervous derangement was the direct result of intestinal worry. As the bowels had been perfectly normal up to the time of the first fit, but never afterwards, it seems probable that at that date the boy had suffered from an attack of acute gastric catarrh. This derangement is not only a common cause of convulsive seizures in neurotic subjects but is apt to leave behind it a susceptibility to chills which, if disregarded, may be a fruitful source of mischief. In consequence of this susceptibility the boy seems to have suffered from repeated attacks of mild catarrh of the colon which led to a continuous over-secretion of mucus ("mucous disease") and started the constipation which was the cause of so much of his trouble. The happy result I attribute entirely to the energetic and painstaking way in which the treatment was carried out by Dr. Allan. The gradual weakening and final stoppage of the fits and the return of the boy's normal placidity of disposition seemed to go hand-in-hand with the reduction of the catarrh and the improvement in the state of the bowels; and when the mucous discharge ceased to be noticed the nervous irritability also came to an end. Whether the ergot and strychnia had any part in the improvement I cannot say, but it is likely that the sedative and tonic effect of these remedies helped the nervous system to recover its tone directly the primary irritation had been put a stop to.

I might bring forward more instances to illustrate the subject of this paper, but the above are sufficient examples of a condition which is far from being an uncommon one. If a child, whether he be or not of known neurotic tendencies, begins to suffer from periodical fits we must not too hastily assume that the case is a serious one or that the patient is, or is likely to become, epileptic. If we are able to connect the seizures with a local irritant or passing derangement of organs we have reason to hope, and even to anticipate, that the removal of the disturbing influence may restore quiet to the nervous system. Our treatment should be directed to this end and instead of flying at once to bromides and other nervine sedatives we should search without delay for the exciting cause and adopt prompt measures for its removal.

I desire to insist upon the fact that it is not only in children who suffer from some obvious and definite local worry that reflex convulsions are observed; indeed, if such a condition be present it is not necessarily the cause of the attacks. Thus, in the case last recorded, the boy passed some long worms and a quantity of thread-worms, but nevertheless the turmoil of the nervous system was in no way allayed by their expulsion. It is evident from the cases narrated that where the nervous system is impressionable and unstable a moderate irritation, *if long sustained*, may keep the system in a state of continual unrest so that any further provocation, even a very slight one, may increase the irritation to an unbearable degree.

It will be noticed that in the instances quoted above there is one common symptom upon which some stress has been laid—viz., that the feet have been habitually cold. The symptom is one to which little importance is usually attached but it betokens a condition which, if disregarded, may thwart our best efforts to treat with success the more chronic complaints of childhood With cold feet a child's susceptibility to chills is so heightened that he can no longer offer an effectual resistance to sudden changes of temperature; and a chill in a young subject in whom the metabolic processes are maintained at high pressure in order to respond to the urgent demands of growth and development almost always means a digestive upset. Nutrition suffers at once and any weakness or injurious tendency is aggravated. That the nervous system should be thrown so readily off its balance argues, no doubt, a high degree of nerve instability; but this is far removed from the epileptic state and need not necessarily be permanent. If such impressibility can subside under favourable conditions in an infant it seems not unreasonable to hope for equally good results in an older child. As a rule, indeed, nervous seizures of this character are as harmless to the older children as they are to the infant; the storm passes off and leaves the patient no worse than before. It may happen, it is true, that attacks which are apparently of this nature persist and become a permanent source of weakness. Thus I have known the seizures to continue to recur in spite of treatment, each time with less and less provocation, until at last they arose apparently spontaneously without any detectable exciting cause. But even in these cases, as far as I have been able to follow them out, the general health seems to suffer little if at all from the attacks; the intellect remains unaffected and the child, if a boy, can go to school and hold his own with his fellows. It is probable that these cases are not true cases of reflex convulsions even at the beginning, but as long as they remain definite convulsive seizures coming on only when the health of the patient is disturbed I do not know how they are to be distinguished. The main point is that such cases are really exceptional. In the large majority of instances where the fit occurs in a child who is the subject of a temporary digestive upset we may reasonably expect that by judicious treatment the seizures may be put a complete stop to and the patient's health permanently restored. Many observed cases warrant me in saying that young persons who have been subject to such seizures to a period as late as 12 years old may grow up into perfectly healthy adults without showing any sign of having suffered in mind or body from a weakness which has long become a thing of the past.

Queen Anne-street, W.

THE PREVENTION OF SEA-BORNE PLAGUE.

BY RICHARD FREER, M.A., M.D. CANTAB.,
LATE SURGEON, PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY.

I HAVE recently spent 12 months as surgeon on steamers trading mainly with Bombay and the Far East. During that period I took the opportunity of making observations, as occasion offered, on the methods adopted to prevent the spread of plague and on the manner in which they were carried out. I hope this account may prove of use to those who, while taking an interest in the subject, have not had the opportunity of becoming personally acquainted with the routine employed and whose knowledge of the subject is mainly derived from Blue-books and Parliamentary reports.

By the Venice Convention certain regulations were recommended to be carried out by the sanitary authorities of ports infected with plague, these regulations especially applying to Bombay. These consisted mainly of the examination of the crew and passengers on shore and the

disinfection of the clothes, effects, and bedding of natives on shore.

At Bombay the following methods are adopted. At an early hour on the morning of leaving the port the native crew are assembled with their belongings in a large building about a quarter of a mile from the docks. There they strip and the clothes they were wearing, together with their bedding, &c., are sterilised by steam. Their shoes are sprayed with a solution of perchloride of mercury and the boxes in which they keep their belongings are scrubbed by themselves at water-taps provided for the purpose. They then take their boxes to a native who sprays the interior with a very small quantity of some disinfecting solution. The men in the meanwhile have arrayed themselves in clean clothes which are not disinfected.

The disinfection of the clothes was very inadequately carried out on the two occasions when I witnessed it. The clothes came out of the steriliser like boiled puddings, wet and sodden. I mentioned this to one of the port medical officers who explained that the fault did not lie with the machines used, but that they were worked by natives who could not be relied upon to get up a sufficient pressure of steam—a result which was due to an ill-advised economy often met with in the East. The disinfection of the shoes was very superficial. The average native shoe or slipper is a dirty object, especially that of the fireman and coal-trimmer. It is full of nooks and crannies in which any germ would flourish exceedingly, being made of soft leather and usually embroidered. A mere spraying with any disinfectant, however strong, could not possibly sterilise the whole of the shoe. The scrubbing of the boxes and subsequent spraying is a most farcical proceeding. The man holds his box under the tap, gives it half-a-dozen scrubs on the top and as many on the bottom, holds it open before the spraying machine for a few seconds, and then trots off to the steriliser for his clothes. The native also brings in his box household goods in variety—tins, wooden boxes, looking-glasses, and pots of grease, besides many others of an unknown nature. These are laid out for inspection but are not disinfected, though why they should be considered less likely to be infected than the clothes it would be hard to say. The crew are then examined in a shed in the docks, and this examination, as a rule, is thorough. The primary object is to detect rise of temperature and enlarged glands. And here I may enter a protest against the method of detecting the latter by means of a sharp prod in the groin and armpit. This is a most dangerous procedure for obvious reasons and if the person examined were of a stoical nature it would reveal nothing.

Rats are well known as disseminators of plague. I have personal knowledge of one ship on which dead rats were found lying about some days before an outbreak of plague took place. It is therefore very important to prevent rats from boarding a ship in an infected port. This is, of course, recognised at Bombay but the means employed are very ineffective. Funnels are provided which are attached to the ship's cables with the large aperture downwards. To these, as at present employed, there is the objection that rats will jump from the cable to the edge of the funnel and so get on board ship—this I have learnt from several credible eye-witnesses. Three or four lengths of wire rope are generally used to moor a large-sized vessel and the funnels cannot possibly be fastened on all of them as the different lengths of rope lie too close together. The usual plan is to place the funnel on any length of cable which lies far enough from its fellows to allow the funnel to fit in between, letting the other lengths take their luck. Manila cables are frequently used. These are large ropes three or four inches in diameter, much too big to allow the funnels provided to be placed on them, although they offer a most obvious and safe pathway for rats. Rats will frequently come up the gangway ladder and nothing is done to hinder them. Lighters, native boats, &c., are fastened alongside, often in great numbers; some of these must harbour rats yet nothing is done to prevent them from coming on board. When a ship is loading at an infected port the object should be to prevent rats from coming on the ship. When the same ship reaches a healthy port the rats should, as far as possible, be prevented from leaving the ship. I have never seen the funnels reversed—they are always placed with a view to prevent the rats from coming on board. This I have seen in a ship lying in the port of London and newly arrived from Bombay. The use of funnels at Bombay appears to be entirely optional, as I saw a good many ships lying in the port without them. And when they are used it seems to be considered sufficient to place them anyhow on the rope. I have seen funnels so attached to the cables that a large hole was left in the mouth of each one, this being due to the careless way in which they were put on. It is impossible in some circumstances, such as the relative size of the cable and the funnel, to avoid leaving a hole in the funnel; and these holes are nearly always plugged loosely with tow or cotton-waste instead of with a wooden plug cut to fit. The funnels are generally placed on the sag of the rope, so that the edge of the funnel is tilted towards the rope and often nearly touches it.

The killing of rats on board ship is a very necessary procedure when the presence of infected rats on board is known and also as a preventive measure. It is, however, a very difficult thing to do thoroughly, especially in passenger steamers which carry a large amount of perishable stores and are fitted with all kinds of wooden partitions. Sulphurous acid has been tried and in one instance, to my knowledge, with very partial success. It has many disadvantages and can only be used if all the stores and a considerable amount of woodwork be removed, and it will not kill the rats unless it is very condensed. Carbonic acid gas will kill rats if it reaches them, but it is very heavy and non-diffusible and rats might be able to climb to the upper parts of the ship out of the way. I once tried driving rats out of a hold with the fumes of burnt red pepper. I very much doubt if there were any rats—at any rate, none appeared—though the effect of the fumes on the sportsmen who were waiting to kill the rats as they came up on deck was heartrending.

A memorandum on the influence of rats in the dissemination of plague, by Dr. W. J. Simpson, was issued from the colonial secretary's office at Hong-Kong in 1900. Dr. Simpson especially emphasises the fact that plague attacks rats before human beings, and after dealing with the destruction of rats on shore he makes the following suggestions for killing them on board ship. He states that "the destruction of rats on board ship is peculiarly difficult" and "no method hitherto devised has proved entirely satisfactory." He recommends sulphurous acid, carbonic acid gas, and a substance called "pictoline." The methods which he advises for their use could only be employed on cargo steamers. He is apparently under the impression that cargo steamers necessarily harbour more rats than do passenger steamers. This, as a rule, is not the case. In a cargo steamer the whole of the space beneath the main deck is devoted to holds, with the exception of engine-rooms and coal-bunkers, and these holds being made of iron throughout do not provide a comfortable home for rats. On the other hand, passenger steamers are honeycombed with wooden partitions and carry a large amount of edible stores. I once saw the hold of a large cargo steamer emptied and not a rat was to be seen, although search was made for them. In the same steamer 30 or 40 rats were trapped on the voyage in the storeroom and in the crew's quarters. Of course, grain ships and others the cargo of which mainly consists of foodstuffs might harbour a very large number of rats, but ships coming from the East mostly carry cargoes of non-edible material.

With regard to the detection of plague on board ship at ports of call I can only give the routine employed on ships which carry a surgeon. At Colombo, Penang, and Singapore the mean temperature is too high for plague to flourish and no especial precautions are adopted, though ships sailing direct from Bombay to Colombo are there placed in a modified form of quarantine. At Hong-Kong the surgeon's certificate of good health suffices, but if there are any suspicious cases on board the port surgeon examines the crew. At Shanghai there is a regular inspection of the ship's crew and passengers and the native crew are thoroughly examined. There are very complete arrangements at this port for quarantine, &c. In Japan the ship is boarded by four or five gold-laced officials who make, from a Western point of view, a very curious examination of the ship's crew. Among other solecisms, to feel the pulse with the ball of the thumb or palm of the hand is quite usual. At Suez the native crew is examined and the passengers and white crew are inspected, a lady doctor being available if her services are required, and at Marseilles the same routine is practised.

Owing to the precautions taken it is most unlikely that any person infected with plague can board a ship at an infected port. Therefore the large majority of such cases of plague as are found on ships from time to time are, in all probability, infected on board, either by rats, clothing, bedding, or cargo, and seeing that cases of plague on board ship still occur far more frequently than they should do I think that

the time has come for the recommendations of the Venice Convention to be reviewed and modified. I am strongly of opinion that no native sailor should be allowed to bring any clothing or effects from his home on board ship, even if disinfected. This may appear to be a drastic measure but it is not so in reality and would probably cost less than the present cumbrous mode of disinfection. It would be no difficult matter for the port authorities to establish a depôt where the native sailor could deposit all the clothes and belongings necessary for his sea-life during the interval between his discharge from one ship and his engagement on another. These could be disinfected if considered necessary. This would at least minimise the chances of clothes being brought in contact with plague.

The question of rats is a more difficult matter to deal with. The funnel when modified seems to be the best method of preventing rats from climbing cables. Each funnel should have *chevaux de frise* of sharp-pointed wire round the circumference, to be coated with some substance obnoxious to rats. These should not be of one stereotyped pattern, but they should be made in such shapes as circumstances may require, and the shapes necessary can only be found out by experience. They should be fixed by the shore authorities and if natives are employed they should be under the direct supervision of a European, and, lastly, the funnels should be placed on the most perpendicular part of the rope, that is, as near the hawse-hole as possible. I do not think it possible to kill all the rats on board any ship by any means short of sinking. But I do think that a thoroughly organised system of catching rats by traps or other means would reduce their number to a minimum. It is well known that rats resort to the ship's boats for water and of this fact advantage should be taken. Any live rats seen on board, as well as the daily tale of those killed, should be noted in the log-book, and it should be considered as important to keep the number of rats down on board ship as to keep the brasswork clean.

There is one more subject I should like to call attention to. Each port makes its own regulations for granting *pratique* to vessels entering it. The result of this is that there is no continuity of action and that while one port may take every precaution to safeguard itself it may nevertheless make no provision to prevent infectious disease from being carried through to another port. The following is an instance. Two cases of illness broke out on a steamer sailing from Bombay on the day before arriving at Colombo. These cases were carried through Colombo, Penang, and Singapore to Hong-Kong, where they were discovered to be plague. In the meanwhile infection had spread to two other persons. How many more were infected I do not know, as I left the port on the day all this was discovered. Now, if each port were treated not as a unit but as part of a continuous system this probably would not have occurred, as every case of illness would be examined with a view to future contingencies and any case not above suspicion would be removed from the ship. This is a matter of considerable importance and directly affects the health of the whole world. It should surely be administered by the central government of the country and not left in the hands of local authorities. A scheme should be devised by an international commission of all civilised nations that would be fundamentally the same for all ports, differing only in such details as may be found necessary to deal with special epidemics. It would be outside the scope of this paper to enlarge on this subject, but its importance and the self-evident deficiencies of the system employed must form my apology for mentioning it.

Rugeley.

FATALITIES TO WORKMEN CAUSED BY BREATHING SULPHURETTED HYDROGEN.

BY THOMAS OLIVER, M.A. DURH., M.D. GLASG., F.R.C.P. LOND.,

PHYSICIAN TO THE ROYAL INFIRMARY, NEWCASTLE-UPON-TYNE.

AT a graving dock in course of construction at Hebburn-on-Tyne there occurred on July 17th, 1902, a serious disaster whereby three men were suddenly deprived of life. A similar accident took place on August 25th. On this occasion one man was killed and three men just escaped losing their lives. In the process of excavation the contractors had found it necessary to use a large iron cylinder or caisson. The cylinder at the date of the first accident was 48 feet deep and nine feet in diameter; 15 feet of the caisson projected above the level of the dock. In excavating the 33 feet of soil the workmen in the cylinder passed through sandy clay, stiff clay, gravel, and in the month of July they had reached the boulder clay. From the amount of slag that is lying upon the ground the site of the proposed dock must have been occupied many years ago by iron-furnaces, while close to where the iron cylinder has been sunk there is a large heap of refuse and tank-waste deposited there half a century ago from chemical works that have long since disappeared. This alkali waste lies on the clay close to where the excavation is being made by the men in the caisson and from it there is a certain amount of drainage. The refuse from chemical works is a nuisance to a neighbourhood in more ways than one. When rain falls upon the waste sulphuretted hydrogen is given off which impregnates the atmosphere, while the liquid that drains away contains sulphur compounds that destroy vegetation. Although the alkali waste had not previously caused alarm at the Hebburn dock so far as the evolution of gas is concerned, it was yet the source of disagreeable sulphurous odours. On the occasion of my visit to the excavations three days after the disaster in July the odour of sulphuretted hydrogen in and close to the place where the caisson is sunk was extremely pungent. The lower part of the cylinder reeked with it. The story of the fatal accidents is briefly this.

At 6.30 on the evening of July 17th a workman entered the cylinder. He had been inside about 20 minutes when screams were heard. A comrade, believing that his mate had been overcome by gas, descended the caisson to render assistance, but in a very few minutes he too shouted and fell to the bottom, having been overpowered by the fumes. A third man went at once into the cylinder to give help, but he too was immediately poisoned. Within the incredibly short period of a few minutes three men were lying lifeless at the bottom of the caisson in three inches of water from which strong fumes of sulphuretted hydrogen were being evolved. The works manager allowed himself to be tied to the chain of a crane and lowered into the cylinder but he was overcome by the gas and had to be withdrawn. He, however, renewed the attempt and succeeded in getting hold of one of the men with grappling irons, but in hoisting the body the belt broke. Subsequently a diver went into the caisson, but he also failed to recover the bodies. A gang of three workmen thereafter tried to reach their fallen comrades, but on account of the fumes they were obliged to desist at a point 15 feet from the bottom of the cylinder. It was not until next morning that the bodies were recovered. As naked lights burned well in the caisson on the night of the accident it is apparent that the poisonous gas was not carbonic dioxide nor was it gas of an explosive nature. Assisted by Mr. Malcolm of Hebburn, who had been called to the dock after the occurrence of the accident, I made a limited post-mortem examination on the bodies of two of the men three days after death. The first was aged 23 years. He had a well-developed and muscular body; rigor mortis was passing off. The right ear had been torn in removing the body from the caisson and dark blood had kept dripping from the wound ever since. The face was pale and slightly cyanosed. Owing to the opacity of the cornea it was difficult to determine the state of the pupils. The body was not decomposing rapidly. On opening the cavities no odour of sulphuretted hydrogen was detected. The heart was normal in size—the right side was extremely flaccid and empty; the left was hard, contracted, and empty. The lungs were slightly œdematous and pale. The liver was dark. The abdominal viscera were healthy. The blood was dark and fluid; some of this was removed from the vena cava for spectroscopic examination. The second man, whose age was 19 years, had a well-developed and muscular body; rigor mortis was still present; his hands were tightly clenched as if death had taken place in a convulsion. His face was cyanosed, so too were the neck and upper part of the chest, while the hands and arms were extremely pale. No odour of sulphuretted hydrogen was obtained on opening the large cavities of the body. As regards the heart a small quantity of serous fluid was present in the pericardial sac; the right heart was flaccid and empty; the left was firmly contracted, hard, and empty. The lungs were pale and œdematous. The liver was dark. The abdominal viscera were healthy. The blood was dark and liquid. Some of this was removed for spectroscopic

examination. The veins, generally speaking, contained very little blood.

The blood gave the spectrum of oxyhæmoglobin. There were two distinct bands between the yellow and the green. The hæmoglobin was easily reduced by means of ammonium sulphide. There was therefore no carboxyhæmoglobin present in the blood, so that the gas which killed the men was clearly not carbon monoxide. The spectroscope gave no further information.

As the air in the caisson was redolent of sulphuretted hydrogen it seemed probable that it was this gas that had poisoned the workmen. Accordingly, through Mr. H. J. Wilson, His Majesty's Inspector of Factories, I received a sample of the water taken from the bottom of the cylinder. This I submitted to Professor Bedson of the Durham College of Science for chemical analysis. The following is his report: "Evidently a brackish water containing a little iron sulphide in suspension, also some sulphuretted hydrogen dissolved in it. The results of examination are as follows. Specific gravity, 1·011; total solids, 984 grains per gallon. The solids contain the following radicles: sodium, potassium, calcium, magnesium and iron, chloride, sulphate and sulphide. The water on boiling gives off sulphuretted hydrogen; 100 volumes of water gave 12·2 volumes of this gas. This estimate may be considered low, as on standing some of the gas is decomposed, and as I was unable to make the examination on the day I received the sample there may have been a loss on this account."

For some time after the accident just recorded the men refused to enter the cylinder, but by degrees their repugnance was overcome and the work of excavation again proceeded apace. On August 25th another disaster occurred whereby one man lost his life in the caisson and three others just escaped. By this date the cylinder, now lengthened, had sunk further into the ground. The boulder clay had been penetrated and sand had been reached. There were 46 feet of water in the cylinder. About the level of the water, or about 15 feet from the upper end of the caisson, there was a wooden platform. On August 25th a diver had been working at the bottom of the caisson and after having been thus engaged for an hour he came up to the platform where a workman, aged 28 years, in attempting to remove a glass window from the front of the diver's mask was immediately overcome by gas and fell into the water almost on to the diver. The diver shouted for help and for air, which had been stopped, to be again pumped to him. A workman who went into the caisson to the rescue was immediately overcome by the fumes, as also was a youth who tried to render assistance. There were now four men in the caisson, all of them more or less overpowered by the fumes, for although the diver was receiving air he experienced the sensation as if he was whirling round and round, and but for timely assistance he too would probably soon have become unconscious. Mr. A. M. G. Walker of Hebburn was on the spot when the men were removed from the caisson. Three of the men were more or less ill, one of them being completely unconscious, while the man who had removed the glass from the diver's mask was found to be dead, his face being dark as if he had been suffocated. Attempts were made for a lengthened period in his case to restore animation, but unsuccessfully. By means of strychnine and ether administered hypodermically, artificial respiration, plenty of fresh air, occasional inhalations of oxygen, warmth externally, and stimulants, Mr. Walker succeeded in restoring the three men, one of whom stated afterwards at the coroner's inquest that in about a minute and a half after entering the caisson he had become unconscious and therefore remembered nothing more.

In the hope of throwing light upon the dangers incidental to breathing sulphuretted hydrogen I exposed a healthy dog weighing 12 pounds 9 ounces to the influence of the gas prepared and administered by my colleague, Dr. R. A. Bolam, to whom I acknowledge my indebtedness for his assistance in the experiment. Respiration of an atmosphere containing 0·02 per cent. of sulphuretted hydrogen produced no effect upon the animal nor did inhalation of air containing 0·045 and 0·075 per cent. of the gas. When the dog was placed in an atmosphere containing 0·15 per cent. of sulphuretted hydrogen it very shortly afterwards, and without any sign of distress or warning, suddenly became rigid and fell apparently dead, the breathing being the first to cease. Occasionally, and at long intervals, a feeble beat of the heart could be heard. Artificial respiration soon restored the animal. In two and a half minutes the dog was quite itself again and was allowed to move about freely for some time. On the animal respiring air containing 0·15 per cent. of sulphuretted hydrogen, apparent death occurred in 1 minute 40 seconds, being preceded by strong muscular spasm and stoppage of breathing. The heart continued to beat for a period. On exposure to fresh air the animal soon revived. In repeating the experiment the same events took place. There might be one or two deep gasping inspirations, or without these the animal would suddenly fall apparently dead in a state of extreme rigidity and with its breathing entirely suspended. Occasionally very marked fibrillary tremor could be observed over the whole body and in this condition of suspended respiration, while the heart could be felt beating very quickly, feebly, and irregularly, the animal could be resuscitated by artificial respiration. With each re-exposure to the sulphuretted hydrogen, but never exceeding 0·2 per cent., the dog was more quickly and more profoundly affected. It took the animal longer time to recover, it seemed to be suffering from shock as well. The respiratory mechanism appeared to be totally deranged; the automatism of the respiratory centre was so disturbed that it was with difficulty and only after a lengthened exposure to fresh air that the breathing again became rhythmic. When respiration was re-established it was quick, 40 to the minute; the beat of the heart was quick and irregular. The pupils were dilated. When the animal had recovered from a deep administration it was evident that the gas had profoundly affected its nervo-muscular apparatus, for it could not stand unaided and its limbs remained in a state of rigidity. There is not the least doubt that sulphuretted hydrogen causes death, and that very rapidly too, by its effect upon the respiratory centre. Death is sudden and apparently painless. The animal simply falls down dead without warning. This may be preceded by strong muscular rigidity with slight convulsive tremor, accompanied by one or two deep gasping inspirations, and although the breathing is suspended for a period the heart may yet continue to beat quickly, feebly, and irregularly. At this stage recovery is possible. On examining the body of the dog after death the heart was found to be flaccid, dilated, and filled with dark fluid blood on both sides. From the right auricle blood was removed for spectroscopic examination. The lungs were pale and presented nothing abnormal. Through the spectroscope the blood showed the two bands of oxyhæmoglobin and was found to be readily reduced by means of ammonium sulphide.

So far as concerns the data furnished by the necropsies on the bodies of the two men and dog just alluded to there was nothing detected at the post-mortem examination that can be said to point conclusively to death having been caused by inhalation of sulphuretted hydrogen. The diagnosis rests largely upon the character of the surroundings and the mode in which death was induced. In looking over the literature of the subject I find that in nearly all the cases, with one or two exceptions, where death took place rapidly no pronounced pathological lesions have been found and no definite spectrum has been given by the blood.

In order to ascertain whether blood in contact with sulphuretted hydrogen would show a particular spectrum diluted defibrinated blood was exposed to the gas by Dr. Bolam and myself. We made three experiments. 1. H_2S was passed through defibrinated ox blood for *one minute*. The liquid became chocolate-coloured and then slightly green. On examination it gave the spectrum of methæmoglobin—viz., one band in the red and two in the green. On adding ammonium sulphide and heating the liquid no reduction at first took place, but after standing for some minutes the fluid assumed a greener colour and by degrees reduction was effected. 2. In order to determine what degree of exposure to the gas was necessary for the blood to give the spectrum of methæmoglobin sulphuretted hydrogen was passed for *20 seconds* through diluted defibrinated blood. Examined immediately afterwards the two bands of oxyhæmoglobin were found to be still present. By degrees the liquid on standing became dichroic, appearing green by reflected and red by transmitted light; it now gave the spectrum of methæmoglobin, the liquid meanwhile becoming darker and greener to the naked eye. 3. In another experiment sulphuretted hydrogen was passed for only *five seconds*. The appearance of the blood at first was unaltered and the spectrum was simply that of oxyhæmoglobin. On examining this blood spectroscopically every minute we found that it was not until four minutes had elapsed from the time of removing it from contact with

the gas that there began to appear a line in the red of the spectrum indicating the presence of methæmoglobin. The blood itself by this time had become slightly like prune-juice in colour. In another minute—i.e., five minutes after sulphuretted hydrogen ceased to be passed through the blood—the spectrum of methæmoglobin was distinct. Where sulphuretted hydrogen acts upon blood for only a very short time methæmoglobin is apparently not immediately formed. It is probable, therefore, in fatal cases of poisoning that man is not exposed long enough to the gas for methæmoglobin to develop, for as we have seen it was not present in the fatal cases alluded to above.

In addition to being evolved from alkali waste sulphuretted hydrogen is found in drains and cesspools and is due to decomposing matter. Other gaseous products of putrefaction such as carbonic acid, carbon monoxide, and ammonia are also usually present. The effect of breathing such foul air will be largely influenced by the gases, other than sulphuretted hydrogen, that are present and their amount. Usually there is a deficiency of oxygen. As far back as 1884 Grehant and Peyron demonstrated the point at which sulphuretted hydrogen mixed with air became poisonous. In order to kill a dog Peyron found it necessary to employ a mixture of 1 in 500. There is not the least doubt that the injurious effects of sulphuretted hydrogen are not sufficiently appreciated by members of the medical profession who have not made themselves acquainted with the literature of the subject or of testing its action. Dupuytren and Thenard found air containing 0·66 of this gas per 1000 poisonous for birds, 1·25 per 1000 poisonous for dogs, and 4 per 1000 poisonous for horses. Lehmann observed that air containing 0·13 of the gas per 1000 caused local signs of irritation, the effect being probably a narcotic one judging from the position assumed by the animals experimented upon. When men working in sewers are obliged to breathe an atmosphere containing a fairly large amount of sulphuretted hydrogen death is often instantaneous, and at the necropsy, as in my own cases, no constant pathological changes are found in the body unless it be slight œdema of the lungs and the fact of the blood being dark and fluid. The chambers of the heart may contain fluid blood, but this is not always the case, as in two of the three men killed in the accident in July at Hebburn the heart was empty. Lehmann,[1] in addition to his experimental work upon the effects of sulphuretted hydrogen, records the case of three men who breathed an atmosphere containing 0·2 of the gas per 1000 of air. Within from five to eight minutes there was intense irritation of the eyes, nose, and throat and after 30 minutes they were unable to remain in the atmosphere any longer. Air containing 0·5 of sulphuretted hydrogen per 1000 is, according to him, the utmost that can be breathed with safety. Even in this quantity (0·5) it caused in less than half an hour smarting of the eyes, nasal catarrh, dyspnœa, cough, palpitation, great muscular weakness, headache, and faintness, with cold sweats. According to Lehmann an atmosphere containing from 0·7 to 0·8 of sulphuretted hydrogen per 1000 of air is dangerous to human life and from 1 to 1·5 per 1000 destroys life rapidly, the symptoms even coming on after withdrawal from the poisonous atmosphere. There must be, however, an idiosyncrasy to the effects of this gas if the statements of some writers are to be regarded as trustworthy. In the "Encylopédie d'Hygiène et de Médecine Publique," Libre VI., Layet deals with this subject and mentions the fact that some men can bear the absorption of relatively large quantities of this gas without experiencing any inconvenience. Parent-Duchâtalet respired for some time an atmosphere containing 29 per 1000 without suffering any ill-effects. My own opinion is that sulphuretted hydrogen is an extremely poisonous gas and in this I am supported by most writers. Haldane[2] says, in writing of white damp, that the poisonous constituent of this gas is CO; occasionally, however, H_2S is also present in formidable proportions. The latter gas is extremely poisonous, as little as 0·07 per cent. being capable of causing death if breathed for a length of time. Air containing 0·2 per cent. kills warm-blooded animals within one and a half minutes. A. P. Laurie[3] alludes to the possible danger from this gas, but at the same time says he has "not been able to obtain evidence that the occasional exposure to small quantities of the gas has an injurious effect." While no marked symptoms follow the inhalation of small quantities of sulphuretted hydrogen, still it is more than likely that effects must in time follow the breathing of such a poisonous gas. Laurie's remarks apply mostly to persons living in the neighbourhood of chemical works and where the air, as at St. Helens, is occasionally polluted by the gas that escapes from the works. A very small quantity of sulphuretted hydrogen is sufficient to make itself known by its unpleasant odour. When men have been breathing H_2S for a time, and especially when mixed with other gases as in sewers, its presence is not so noticeable, and therefore the dangers attendant upon inhaling the gas are not realised. Gaseous emanations from sewers submitted to chemical analysis by Layet were found to contain sulphuretted hydrogen, ammonium sulphide, carbon dioxide, nitrous dioxide, and phosphoretted hydrogen. Herbert-Backer made a comparison between the various morbid phenomena due to prolonged exposure to air coming from sewers and showed the relationship of these phenomena to the different gases that were present. The sudden death of workmen in sewers is principally due to sulphuretted hydrogen. It is when sewers have got blocked and are being cleaned out that sudden fatalities have mostly occurred. In an ordinary way where there are only traces of this gas the workmen complain of vertigo, headache, and malaise, which disappear when the men come out into the fresh air, but occasionally it happens that a workman falls down in the sewer as if struck by an apoplectic seizure. On Feb. 4th, 1862, four men were thus killed in a sewer under Fleet-street, London. In 1880 in Paris five workmen were poisoned in a sewer in the Boulevard Roche-Chouart, of whom four died. In addition to sulphuretted hydrogen the air of sewers may be vitiated by carbon monoxide coming from illuminating gas that has escaped through a fissure in the pipes. Having escaped it is taken up by the soil and enters the sewers by aspiration; hence the necessity of a necropsy from a diagnostic point of view and of a spectroscopic examination of the blood of workmen who have died in the sewers. Since putrefying fæcal matter gives rise to sulphuretted hydrogen it should be remembered that empty cesspools are just as capable of causing mephitic poisoning as those that are full. In night-soil men the symptoms of the minor form of mixed sewer gas poisoning are complete and sudden loss of consciousness, immobility, and stiffness of the walls of the chest; respiration, while not entirely stopped, is irregular and incomplete, the pulse is scarcely perceptible, and the face and hands are pale, livid, and cold. In the severer forms of poisoning convulsions occur, followed by death. When men have been rescued they have stated that they had experienced a sense of great weight about the lower part of their chest and a feeling as if their head had been tightly grasped in a vice.

Brouardel and Loye in 1885 showed that sulphuretted hydrogen destroyed life in two ways. In one form of poisoning death is immediate; the individual falls down dead as if struck by lightning. Death in these circumstances is clearly due to the action of the gas upon nerve centres; the pupil is dilated and its reflex is abolished, the limbs are firmly contracted, respiration which is momentarily convulsed is soon arrested, the heart beats slowly, and with this there is a gradual but regular fall of blood pressure leading up to death, the heart being the *ultimum moriens*. After death the blood is found to be dark and the hæmoglobin is, practically speaking, not altered. In the second form of poisoning death is slower. To the nervous phenomena there are added those due to asphyxia. "After a preliminary phase characterised by dilatation of the pupil, insensitivity of the cornea, arrest of respiration, and slowing of the heart's action there appear symptoms due to asphyxia. Respiration recommences and for the moment the movements are energetic, all the muscles of the thorax and shoulders being brought into play. The heart meanwhile beats irregularly and the blood pressure falls or it rises and falls, and the animal dies in a state of coma. The blood is very dark and its hæmoglobin is altered. The urine sometimes contains sugar or albumin."

Workmen who are exposed to the fumes of sulphuretted hydrogen occasionally complain, in addition to general feebleness and sense of weight at the stomach, of a skin eruption composed for the most part of small boils. Some men seem more predisposed to these than others.

It is difficult to say exactly how sulphuretted hydrogen kills. Wynter Blyth[4] says that sulphuretted hydrogen is distinctly a blood poison; the gas unites with the alkalies of

[1] Archiv für Hygiene, Band xiv., 1892, S. 135.
[2] Dangerous Trades, The Air of Mines, p. 555, published by Murray, 1902.
[3] Loc. cit., Chemical Trades, p. 582.
[4] Poisons, their Effects and Detection, third edition, p. 73.

the blood and the sulphides thus produced are partly decomposed in the lungs and breathed out again as sulphuretted hydrogen. Bouis,[5] on the other hand, is of the opinion that once sulphuretted hydrogen is in the lungs it finds itself under conditions that are most favourable for its transformation into sulphuric acid, and he therefore concludes that the disorders which it causes in these organs and in the blood ought to be attributed to this modification. Hoppe-Seyler maintains that the gas absorbed acts upon the colouring matter of the blood and robs the hæmoglobin of its oxygen. A great deal depends upon the length of exposure to the gas and the amount of it present in the air that is breathed. Neither in the men who succumbed to the gas at Hebburn nor in the dog experimented upon in the laboratory did I find the hæmoglobin of the blood altered in any way. J. V. Laborde, on the other hand, holds that sulphuretted hydrogen so acts upon the hæmoglobin that its presence in the blood determines a characteristic spectrum. He is of the opinion that the gas acts mostly upon the nervous system. According to him sulphuretted hydrogen causes a functional arrest of the respiratory centre in the medulla. This effect may be brought about in two ways, directly or indirectly. In the first, the poisonous gas when carried by the arterial blood to the brain acts upon the respiratory centre so as to induce disorder; it causes momentary arrest or it brings about in a more definite manner cessation of those functional phenomena which the centre superintends—viz., the mechanical respiratory movements. In the second mode a peripheral impression is made upon the pulmonary mucous membrane, or rather upon the terminal expansions of the vagal nerves in the lungs, whereby there is induced reflexly the same functional suspension. By the latter method a fatal accident would be more immediate and more rapid since the gas would not require to be carried by the blood at all. Simple contact of the gas with the pulmonary mucous membrane would be sufficient to produce physiological effects.

In a paper of this length it is impossible to deal in detail with the chemical methods adopted to detect sulphuretted hydrogen, either qualitatively or quantitatively. It is sufficient to state that if air containing the gas is aspirated through a solution of lead acetate a black colour is obtained. Similar colouration is obtained on exposing filter paper moistened by silver nitrate or lead acetate solution.

Is it possible to prevent such accidents as those that occurred at Hebburn? Excavations close to slag heaps or the waste refuse of chemical works should be conducted with the greatest caution. Houses ought not to be erected in too close proximity to these heaps, for Taylor[6] reports that at Cleator Moor the inmates of some cottages that had been built upon iron slag rich in calcium and ferrous sulphide—three adults and three children—died during one night in consequence of a heavy rain washing through the slag and liberating a considerable quantity of sulphuretted hydrogen that found its way into the houses. It is dangerous, therefore, to allow buildings, especially for living in, to be erected close to either slag or chemical waste-heaps. In all circumstances the odour of sulphuretted hydrogen should be regarded as a danger signal. It is a fairly heavy gas; it has a density of 16·99, and is likely to lie low at the bottom of a cylinder or in a confined space. The freest ventilation is desirable, so as to prevent stagnation and to encourage the removal of the gas as far as possible. Before allowing men to work in confined spaces where there is a suspicion of sulphuretted hydrogen the plan might be adopted of exposing a piece of filter paper soaked in lead or silver solution. A cylinder of oxygen should be at hand and in the event of apparent death from breathing the gas artificial respiration should be adopted at once in the open air, warmth applied externally, and stimulants with strychnine carefully administered.

Newcastle-on-Tyne.

[5] Encyclopédie d'Hygiène et de Médecine Publique. Article by Layet.
[6] Principles and Practice of Medical Jurisprudence, vol. ii., p. 122.

ROYAL VICTORIA HOSPITAL, BOURNEMOUTH.—On Jan. 16th Princess Louise (Duchess of Argyll) formally opened the new children's ward at the Royal Victoria Hospital, Bournemouth. The ward will contain 16 cots. The hospital was built by the townspeople as a memorial of the jubilee of Queen Victoria and was opened in January, 1890, by the King when Prince of Wales.

THE SURGICAL TREATMENT OF RHEUMATIC FEVER.

BY JOHN O'CONOR, M.A., M.D. T.C.D.,
SENIOR MEDICAL OFFICER, BRITISH HOSPITAL, BUENOS AYRES.

SINCE I first[1] invited attention to the necessity for surgical intervention in this disease I have been enabled further to test the value of the treatment in 20 cases, most of which, as may be seen on perusal of the notes, had proved recalcitrant to medical treatment. It would be puerile in a paper dealing with any treatment of this disease to pretend to ignore the high value placed on salicylic acid and its compounds by most competent medical observers, and while it is a duty to admit that many cases seem to derive benefit from its administration, yet a considerable number seem to be unaffected by it, and on many occasions I have witnessed the onset—indeed, establishment—of endocarditis during full physiological exhibition of the drug.

In regard to a criticism passed on one of my early contributions on this subject that possibly such cases as had not reacted to salicylates were not rheumatism but a form of arthritis caused by some other infection, I can only state that such a distinction requires an empirical faith which I do not possess, particularly since I have proved that all these acute cases respond equally to an intelligent use of a scalpel. Professor Osler in the latest edition of his work states that "the drug treatment of acute rheumatism is still far from satisfactory," and "the truth is there are certain cases of rheumatic fever that resist all forms of treatment." If he should see his way to give surgery a trial I am confident that he will modify the last sentence in his next edition. At the same time I do not wish it to be understood that I consider my treatment a panacea in all forms of the disease. On the contrary, I have had proof[2] as to its futility in chronic cases, particularly in those of a dry variety, the result of prolonged pickling of synovial membrane and vessels in infective material. But in the condition commonly understood as rheumatic fever, acute rheumatic arthritis, or acute rheumatism, I am certain that surgical treatment is most efficacious, not only in causing immediate disappearance of the arthritis and early cessation of general toxæmia, but also from effectually protecting the heart against attack.

In my first paper I ventured the clinical theory that this disease is an infective one, something similar to gonorrhœal arthritis and pyæmia, the germ or toxin gaining admission to the body through the tonsil or other microbial trapdoor, and that the joint invasion is promptly followed by a form of infective arthritis, accompanied with general toxæmia, and furthermore the infected joints serve as incubators where the poison is elaborated and passed into the circulation, and thus conveyed to other articulations and to the heart. Having such views I maintain that removal of the infective material as soon as possible from the infected joints is a scientific and rational method of treatment, a conclusion fully corroborated by results. It is hardly necessary to observe that, as in pyæmia and gonorrhœal arthritis,[3] the extent or intensity of metastatic lesions may be out of all proportion to that of the primary focus of infection; yet no matter how trivial the signs of the latter may seem, it is necessary to deal radically with it before hoping effectually to overcome the former. I wish again to invite attention to the form of infective watery cellulitis[4] which not infrequently appears to be the dominant manifestation of the disease about the ankle and wrist joints. Sometimes I find this associated with evidence of arthritis of the corresponding joints and sometimes not. Multiple incisions effect a prompt cure.

CASE 1.—A man, aged 41 years, was admitted to hospital on June 21st, 1897, suffering from rheumatic fever, the symptoms being a temperature of 102° F., the tongue thickly coated, the pulse 80, profuse sweating, anorexia, the urine scanty and high coloured, with a trace of albumin. There was slight pain in the left elbow but no swelling was visible.

[1] Glasgow Medical Journal, October, 1897.
[2] 150 Arthrotomies, THE LANCET, April 12th, 1902, p. 1061.
[3] The Surgical Treatment of Gonorrhœal Arthritis, THE LANCET, Dec. 9th, 1899, p. 1585.
[4] Annals of Surgery, April, 1899.

Both knee-joints were swollen, and the patellæ were floating and very painful, with some peri-articular inflammation and slight œdema. There were no cardiac complications. Notwithstanding a liberal and prolonged trial of salicylate of soda, salicin, turpentine, quinine, and flannel to the joints, blankets, and milk diet, the case gradually assumed an adynamic character, and as he could not be got to take nourishment by the mouth nutrient rectal enemata were administered. Blisters, fomentations, ointments, iodine, even linseed poultices were in turn applied locally, but no treatment, internal or external, seemed to diminish the quantity of fluid in the knee-joints or general toxæmia. As a last resource, on July 17th, arthrotomy of the right knee was performed and four ounces of turbid serum with many large masses of lymph were removed. Owing to his low condition I could not perform arthrotomy of the left knee until three days later when some six ounces of similar stuff were evacuated. All constitutional symptoms rapidly disappeared after the latter operation and he was discharged with good movement in both joints on Sept. 17th. A year later he reported himself and his condition was found to be normal.

CASE 2.—A man, aged 59 years, was admitted to hospital on Nov. 12th, 1897, suffering from acute infection of both knee-joints, with a temperature of 103° F., profuse sweating, "blankety" tongue, scanty high-coloured urine, constipation, and anorexia. As the orthodox medical treatment showed no tendency to reduce the swelling of the knee-joints or to relieve the general toxæmia double arthrotomy was performed on Nov. 18th. Three and a half ounces of flocculent serum were removed from the right knee and four from the left. Drainage with irrigation was continued for four days. Constitutional symptoms vanished, he was allowed out of bed on Nov. 28th, and he was discharged cured on Dec. 6th.

CASE 3.—A man, aged 40 years, was admitted to hospital on Dec. 16th, 1897, suffering from rheumatic fever. The temperature was 101·4° F., the tongue was furred, there was profuse sweating, and the urine was scanty, high-coloured, and albuminous. He complained of intense pain with stiffness in the left ankle, right knee, and left elbow. There was considerable peri-articular inflammation about the ankle, the knee was much distended, immobile, and painful to touch, and the elbow was swollen, fixed, and tender. Sodium salicylate was administered in 20-grain doses every two hours; the joints were enveloped in flannel and liquid diet was given. As no improvement took place on Dec. 18th the left ankle-joint was opened; nothing but a small quantity of synovial fluid was found; multiple incisions were then made through the swollen and inflamed peri-articular structures, the cellular tissue was freely opened up, and the wounds were irrigated and packed with gauze. The right knee-joint was then opened and six ounces of green turbid (almost purulent) serum were removed. Many lymph flakes were detached by the finger from the recesses of the joint and were removed by irrigation and free drainage was provided. Arthrotomy was finally performed on the left elbow and a tablespoonful of dirty serum was removed, followed by irrigation and drainage. On the third day the temperature fell to, and remained at, normal; he partook of a full meal on Dec. 25th and was discharged cured on Jan. 10th, the joints being normal in contour and function.

CASE 4.—A man, aged 43 years, a workman, was suddenly taken ill on Nov. 25th, 1897, with fever and shivering, pain and swelling in both wrists, and a few days later both knees became similarly involved. He continued under the care of his family medical attendant until Dec. 6th when he sought hospital treatment. On admission his temperature was 102° F., with all the usual symptoms of rheumatic fever; both wrists were red, tender, swollen, and stiff, and the left knee was distended and flexed. Salicylates, flannel, and milk diet were most assiduously tried until the 19th and as the condition, local or general, had in no way improved both wrists were opened. No abnormal fluid was found, but on making multiple incisions into the adjacent area affected with cellulitis a quantity of serum escaped from each wound. Arthrotomy was then performed on the left knee and some two ounces of turbid serum were evacuated. The temperature continued normal after 48 hours, the joints rapidly resumed their normal condition, and he was discharged cured on Jan. 11th.

CASE 5.—A man, aged 40 years, was admitted to hospital on Feb. 24th, 1898. His history was that ten months previously he "caught cold" and suffered from pain and swelling in the left hand and wrist. These symptoms gradually disappeared without treatment. Three months later pain returned in the wrist and two months afterwards the left ankle and foot became swollen and stiff and for the succeeding five months he was unable to walk. On admission his temperature was 99·3° F., his tongue was furred, and there was some sweating; his urine was scanty and high-coloured; he had anorexia and he presented a worn-out appearance. The left ankle and foot were swollen, red, tender, and stiff; any attempt at passive movement caused intense pain. The left wrist was in a similar condition; there was no pain or swelling in any other joint; he had no organic disease. The gums were healthy and he had not suffered from colic; he had had gonorrhœa 15 years before. On Feb. 26th the dorsum of the left foot was incised, the cellular tissue was freely opened up, and the ankle and three tarsal joints were explored. A considerable quantity of serum oozed from the cut tissues, but the interiors of the joints were normal. The wrist received identical treatment; there was no fluid found in the joint (radio-carpal). On the fifth day the general symptoms had disappeared, there was free and painless movement in both articulations, and the patient asked for solid food. On the twenty-fourth day he was discharged cured. Before leaving the hospital he ran 90 yards on a tiled floor, his feet being bare, without a limp or ache.

CASE 6.—A man, aged 26 years, a sailor, entered hospital on March 1st, 1898, with the following history. On Feb. 14th he caught cold on board ship and soon afterwards he felt pain in the left ankle. On the following morning his left knee became swollen and painful, accompanied with fever, "dry" tongue, loss of appetite, and scanty dark-coloured urine. On admission the temperature was 100° F., the tongue was furred, and the left knee was considerably distended; the patella was floating, with marked tenderness and pain on movement. The left ankle appeared to be normal. There was no organic disease. The patient had had gonorrhœa five years previously. On March 2nd arthrotomy was performed and six ounces of greenish turbid flocculent serum were removed from the affected knee. Irrigation and drainage were carried out for three days. On March 28th he was discharged cured and fit for work.

CASE 7.—A man, aged 46 years, a labourer, was admitted into hospital on March 1st, 1898, with the following history. On Feb. 22nd he slept in wet hay and caught a severe cold. On the following day his right knee and right ankle became swollen, stiff, and painful. On the 27th the left knee became similarly affected. On admission his temperature was 101°F.; he had a dirty tongue; profuse sweating was present and the urine was scanty and high-coloured; both knee-joints were distended, flexed, and tender to the touch. The right ankle and dorsum of the foot were swollen, red, and painful. There was no organic disease. On March 2nd three long incisions were made on the dorsum of the foot; serum oozed from the cut surfaces; nothing abnormal was found in the ankle-joint. Arthrotomy was then performed on both knee-joints, four ounces of the usual muddy serum being removed from the right and two ounces from the left. On the third day all symptoms of general toxæmia had disappeared. The patient was allowed out of bed on March 14th and was discharged cured on the 30th.

CASE 8.—A man, aged 27 years, a sailor, was admitted into hospital on April 23rd, 1898, with the following history. On April 18th he caught "a severe cold" on board ship. On the 19th the left knee and the left foot suddenly became swollen and very painful, accompanied with fever, sweats, shivering, constant cough, and difficulty in breathing. On the 21st the right knee and right foot became similarly affected and on the 22nd pain and swelling commenced in the right shoulder. On admission the patient presented a livid appearance. His respirations were 38, his pulse was 110, and his temperature was 101° F.; his tongue was furred and dry; he was bathed in perspiration; both lungs were extensively affected with bronchitis, with slight basic congestion and abundant muco-purulent sputum; and his urine was high-coloured and albuminous. The right shoulder was fixed, swollen, and tender, both knees were distended, painful, and immobile, and the dorsum and sides of both feet and ankles were extremely inflamed and painful. The fact of his heart having so far escaped led me to take the pulmonary risk in a young sailor. A small amount of chloroform was administered and within 20 minutes I returned him to a warm bed with free drainage of the above five joints, having also incised and drained areas of cellulitis. Thanks to excellent nursing and free stimulation by hypodermic injections of strychnia and digitalis and rectal injections of hot coffee and brandy, with frequent inhalations of oxygen gas, he steadily

recovered from operative shock. On the third day the dressings were changed. The wounds were healthy; there was slight, painless, active motion in each joint, but the swelling was considerably decreased, the tongue was moist, the respirations were 30, and the bronchitis was improving. There was no cardiac complication. On the sixth day he was given full diet. As his condition permitted of it he was placed in an armchair before a fire for an hour. 14 days later he was walking about with normal joints, no trace of rheumatism having reappeared in any part of the body. An uneventful convalescence ensued. I think there are few who will not admit that this case was another triumph for Lord Lister.

CASE 9.—A man, aged 42 years, a labourer, was admitted to hospital on May 6th, 1898, with the following history. On the night of April 25th, while sleeping in a draughty hut, he caught cold, accompanied with fever, shivering, and sweating. On the following day he felt acute pain in both wrists, next day both feet became painful, and on the 28th the left foot became swollen, tender to touch, and very painful to move. On May 1st pains had ceased in the wrists and right foot but the condition of the left foot became more intensified. On admission on the 6th his temperature was 99° F., his tongue was moist and furred, and the dorsum and sides of the left foot were swollen and very much inflamed. With regard to his past history he had never had any serious illness, and although he stated that he suffered from gonorrhœa two months previously no evidence of the same could be elicited by repeated examination of the penis during his stay in hospital; however, there was a suspicion. On May 7th, assisted by my friend Dr. L. Colbourne of Beckenham, five four-inch incisions were made into the area of tumefaction; the tissues appeared to be waterlogged and serum poured out of them when divided; the ankle-joint was explored but nothing abnormal was found. A rapid and permanent recovery ensued.

CASE 10.—A man, aged 44 years, was admitted to hospital on Feb 6th, 1899, suffering from rheumatic fever. Both knees were considerably distended, painful, and stiff, and both the ankles and the dorsum of each foot were swollen, red, and painful. His temperature was 102 6° F., his pulse was 100, his tongue was furred, and he had profuse perspiration. His urine was scanty and contained urates and a trace of albumin. As to his past history, he had had two attacks of rheumatic fever, the first in 1882 and the second in 1888, with occasional attacks of joint pains in the intervals. On Feb. 7th arthrotomy was performed on both knees; 12 ounces of turbid fluid were removed from the right knee and four from the left, followed by irrigation and drainage. Multiple incisions were made into the area of cellulitis about the ankles; no fluid was found in the joints. An uneventful convalescence ensued and the patient was discharged cured on March 31st.

CASE 11.—A man, aged 30 years, a labourer, was admitted to hospital on July 19th, 1899. His temperature was 102° F., with great thirst and sweating. His left ankle was swollen and inflamed. Two days later both knee-joints and the other ankle became swollen and tender. His urine was scanty and full of urates. On the 23rd arthrotomy was performed on both knee-joints and turbid, flaky serum was evacuated from each. Multiple incisions were made in the feet; no fluid was found in the ankle-joints. Convalescence immediately followed and the patient was discharged cured on Sept. 6th.

CASE 12.—A man, aged 30 years, a coachman, was admitted to hospital on May 23rd, 1899, suffering from an injury to the right knee caused by a fall in the coach-house two days previously. The joint was found to be considerably distended and somewhat discoloured with some pain on movement. A diagnosis of traumatic hæmarthrosis was made. There were general symptoms. On the 25th the usual arthrotomy[a] was performed and six ounces of dark blood and clots were evacuated from the joint. The wound gradually closed, the joint resumed its normal contour, and the patient was allowed out of bed on the eighteenth day. On June 23rd he suddenly complained of feeling very ill, with fever and shivering. The temperature suddenly rose to 102·3° F. Two days later the left knee, both ankles, and the right wrist became swollen, stiff, and painful, accompanied with profuse sweating, dry furred tongue, and scanty, high-coloured urine. On the following day his respirations were noted to be 34 per minute, with some cyanosis, and a pericardial friction sound was distinctly audible. His temperature was 103° and his pulse was 110. A diagnosis of rheumatic fever was made. Soda salicylate was given in 15-grain doses every two hours, the patient was placed in blankets, the joints were enveloped in flannel, and the patient was given a milk diet. This treatment was continued for one month, but as no improvement took place, either locally or generally, he became extremely emaciated. On July 25th arthrotomy was performed on the left knee and some four ounces of green flaky serum were removed. Both ankle-joints were opened, each containing about a teaspoonful of turbid fluid, and the swelling around the wrist was freely incised. On the following day on entering the ward it was evident that the right treatment had "at last" been adopted: the patient felt much better. An uninterrupted convalescence ensued and he was discharged cured on August 25th. The joints and pericardium were normal.

CASE 13.—A man, aged 48 years, was admitted to hospital on Nov. 14th, 1899, suffering from rheumatic fever. His temperature was 100·5° F., he was sweating, had a furred tongue, and complained of great pain in the affected joints, the right wrist, the right shoulder, the left ankle, and the palmar surfaces of eight fingers. For three weeks previous to admission he had been under the care of his family medical attendant, who kept him between blankets, enveloped the joints in warm wool, and administered constant doses of soda salicylate. On admission he was in a most miserable condition; he was generally painful, had anorexia, and was emaciated. Altogether he was a most unpromising patient. On the 15th arthrotomy was performed on the wrist, shoulder, and ankle, which I supplemented with incisions in the swollen tissues; I also freely incised the inflamed eight fingers. On the following day he expressed himself as feeling much relieved. The symptoms gradually disappeared, he partook of full diet on the tenth day, and was discharged cured on Jan. 13th. He has frequently reported himself and there has been no relapse.

CASE 14.—A boy, aged 15 years, was admitted into hospital on Feb. 7th, 1900, suffering from rheumatic fever, which commenced suddenly six weeks previously with chills and fever and pain and swelling in the right knee and left big toe. On admission the temperature was 100° F., the tongue was furred, and the patient appeared to be very anæmic. The right knee was slightly swollen and was tender on palpation, and the dorsum of the left great toe was swollen and inflamed. Two days later arthrotomy was performed on the knee, and a few ounces of green turbid serum were removed. An incision was made into the swelling on the toe and serum exuded. On the third day, while the knee and the toe were normal except for wounds, some swelling was noticed and pain was complained of in the right wrist. Chloroform was at once administered. Three incisions were made on the dorsum of the wrist and about a drachm of flaky serum was removed from the radio-carpal joint; into the latter a small gauze drain was inserted. The patient afterwards confessed he had noticed that his wrist was bad before the first operation, but thought that "it did not matter." On the tenth day he was allowed out of bed and he was discharged cured on the eighteenth day.

CASE 15.—A boy, aged nine years, was admitted into hospital on Oct. 18th, 1900, with swelling and pain in both knees and ankles. His temperature was 102° F., his pulse was 118, and his tongue was covered with white fur. With regard to the heart, the apex was in the nipple line, fifth interspace; there was increased dulness to the left; the first sound was reduplicated and the pulmonary second sound was markedly accentuated. A systolic murmur was distinct at the apex, audible along the left sternal border, and also in the axilla. Treatment was as follows: Sodium salicylate, 10 grains every four hours, was given, with blankets, flannel, and a milk diet. No improvement followed and on the 21st both knees were opened and greenish flaky serum was evacuated from each. Multiple incisions were made on the feet. No abnormal fluid was found in the ankle joints. Rapid recovery ensued. The patient was allowed out of bed on the twenty-fifth day and was discharged cured a week later. Unfortunately no note was taken of the cardiac condition before discharge.

CASE 16.—A man, aged 28 years, was admitted into hospital on Oct. 31st, 1900, suffering from rheumatic fever. The right knee was distended, very tender, and painful, and the left ankle and dorsum of the foot were swollen and tender. There was also some swelling noted,

[a] Traumatic Hæmarthrosis of the Knee-joint, New York Medical Journal, 1896.

and pain was complained of, in the left knee and right ankle. The tongue was furred, the skin was moist, and the temperature was 101·6° F. On the following day arthrotomy of both knees was performed and about four ounces of flaky serum were removed from the right, and about two ounces from the left, knee-joint; irrigation and drainage were performed as usual. Multiple incisions were made into the area of cellulitis around the ankles; these joints did not contain any abnormal fluid. On the thirty-second day the patient was discharged cured.

CASE 17.—A man, aged 30 years, was admitted into hospital on Feb. 2nd, 1901, suffering from rheumatic fever. His temperature was 101·6° F., his pulse was 94, his tongue was furred, he had acid sweats, and the left knee was swollen and painful. Sodium salicylate was given every three hours in 10-grain doses, and he was placed in blankets and the joints were fomented. On the 5th the right knee and both ankles became swollen. The temperature reached 102·4° at night. On the 7th arthrotomy of both knees was performed and the usual dirty greenish fluid was removed. Multiple incisions were made into the area of cellulitis on the dorsum of the feet, the ankle-joints were opened and some turbid serum was found in each. On the 14th he was allowed out of bed; he had normal movement in the joints and the wounds were granulating. On the twenty eighth day he was discharged cured.

CASE 18.—A man, aged 34 years, a labourer, was admitted into hospital on Feb. 26th, 1901, complaining of pain and swelling in the left wrist and left ankle, which had commenced suddenly on the 19th. On admission his temperature was 101° F., his tongue was furred, he had profuse sweating, and the left wrist and left ankle were swollen, red, and tender. He was treated for eight days on salicylate of soda, rest in bed, flannel, and milk diet. No improvement followed, and on the ninth day multiple incisions were made into the area of cellulitis on the back of the wrist. A quantity of serum escaped. The radio-carpal joint was opened and a little turbid flaky fluid was removed. Multiple incisions were then made into the area of cellulitis around the ankle. No abnormal fluid was found in the joint. On the third day the dressings were changed, the drain was omitted from the wrist, the wounds were quite aseptic, pain had vanished, and the swelling was considerably decreased. On the thirtieth day he was discharged cured.

CASE 19.—A man, aged 27 years, was admitted into hospital on August 11th, 1902, suffering from rheumatic fever. There was a strong family history, the father, mother, and sisters having suffered from rheumatism. On admission his temperature was 100° F., his tongue was furred, and he was very pale. Both his knees were swollen, stiff, and painful. The left ankle was very painful, red, and swollen. His urine was scanty. His heart was normal. Sodium salicylate was given him in 10-grain doses every three hours. The joints were painted with iodine and wrapped in wool and blankets and a fluid diet was given. A week later the right ankle became swollen and painful. The above treatment was persevered with until Sept. 11th, when it was obvious that the patient was gradually becoming more debilitated, the joint symptoms remained at a standstill, with continuous moderate general toxæmia. Arthrotomy was performed on both knees and some turbid flaky serum was removed from each. The ankle-joints were opened and about a teaspoonful of similar stuff was removed from each, the area of cellulitis around the latter joints being freely incised. On the following day all pains had vanished, the toxæmia gradually got less, he was allowed out of bed on Oct. 1st, and he was discharge cured and fit for work 14 days later.

CASE 20.—A youth, aged 18 years, was admitted to hospital on Sept. 25th, 1902, suffering from rheumatic fever. His temperature was 101° F.; he had severe headache, anorexia, furred tongue, and pain in the shoulders; both knees were distended and painful. The heart was normal. Medical treatment was given as before. Four days later the right wrist became swollen, red, and painful, and on the following day both ankles became similarly affected. With regard to the heart cardiac dulness increased outwards and downwards, the apex beat was in the fifth space in the nipple line, the pulmonary second sound was much accentuated, and a rough systolic bruit was distinctly audible in the fourth interspace, at the apex, and in the axilla. On the 30th arthrotomy was performed in both knees and the right wrist and some turbid serum was removed from each. An extraordinary improvement immediately followed. After the third day all general symptoms had vanished and the joints were painless and normal in contour. On Oct. 11th a full diet was ordered, and the patient was allowed out of bed on the following day, and two days later was walking about in a garden. I very much regret that the cardiac examination on the 13th still revealed a loud blowing systolic murmur at the apex, conducted round to the back, and another (probably hæmic) systolic murmur was heard in the second left interspace near the sternum. I have no hesitation in stating that this patient's heart has been practically ruined through my delay in operating, for I have no doubt that if I had performed arthrotomy on both knees on Sept. 26th the infection would have ceased. As I stated before it is not the first occasion on which salicylic acid has proved worse than useless in my experience.

While advocating early surgical interference in rheumatic fever I cannot too strongly deprecate any attempt at the same without the operator feeling assured that he commands all the ordinary essential elements with which to carry out an ordinary aseptic operation. It is obvious that under septic conditions this method of cure might readily be attended with greater disasters than might even originate from the disease itself. To anyone about to put my practice to the test may I suggest (1) do not puncture, open knee-joints; (2) ligate all bleeding points; and (3) drain, do not cork. Also I wish to insist on the great value of thorough drainage in these cases, for it would be a more imbecile act to close a joint containing such toxæmic stuff than to seal hermetically a recent ischio-rectal abscess cavity. In order to carry this properly into effect in operations on the knee-joint an incision an inch long is made on each side of the joint through the capsule. Through both openings a long closed forceps is passed and a fenestrated india-rubber tube half an inch in diameter is drawn across the synovial pouch, leaving about half an inch of tubing presenting at each wound. Drainage having been thus secured the joint is washed out every morning with a jugful of warm carbolic lotion (1 in 60) and the tube is generally dispensed with on the third or fourth day. Irrigation of the joint is daily continued until healing no longer permits of the passage of fluid. A little superficial necrosis of wound tissue caused by pressure of the drainage-tube need not excite alarm, as this rapidly disappears under an iodoform gauze dressing. The latter, by the way, is made fresh for each dressing by immersing pieces of dry sterilised gauze in a solution of equal parts by weight of iodoform, alcohol, and glycerine. A little formalin (1 in 500) is added to the mixture before use. In arthrotomy of the wrist- and ankle-joints drainage is attained by a piece of gauze passed into the joint through the open blades of a dressing forceps previously inserted.

Buenos Ayres.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

BY H. HYSLOP THOMSON, M.D. GLASG.,
RESIDENT PHYSICIAN, CONSUMPTION SANATORIUM, BRIDGE-OF-WEIR, N.B.

SUCCESS in the sanatorium treatment of pulmonary tuberculosis depends largely upon the care exercised in the selection of suitable cases, for in proportion as the disease advances beyond the initial stage of infiltration the chances of ultimate recovery become lessened. In the majority of cases of uncomplicated tuberculous pulmonary disease, if treatment be commenced during the stage of infiltration and afterwards continued as a precautionary measure the result will assuredly be a complete and permanent arrestment of the morbid condition, the prolongation of life, and the securing of health and comfort. And not only so; but the benefit which accrues from the early isolation of tuberculous patients in sanatoriums is not limited to the sufferers alone; it is extended to the community at large, as in every case under treatment a possible focus of infection is removed from amongst a larger or smaller circle of people.

The diagnosis of pulmonary tuberculosis in its early stage is not always an easy matter. Its existence cannot always be confirmed by the detection of tubercle bacilli in the sputum, as frequently expectoration is either absent or it consists of mucus which seldom gives positive results on examination. Further, physical signs of disease implicating

the lungs may be so indefinite as to be easily overlooked, while the cardinal symptoms of phthisis at this stage are not generally well developed.

In considering whether a patient is or is not suffering from early tuberculosis of the lung it is desirable, before proceeding to the examination of the chest, to make a careful inquiry into the family and personal history. Due consideration must be given to the existence of a tuberculous family history as pointing to an inherited predisposition or the probability of exposure to infection. The presence of a pre-existing pleurisy, a history of hæmoptysis, or the evidence of tuberculous disease of the cervical lymphatic glands should be noted. That these points are worthy of consideration in relation to diagnosis a glance at the subjoined figures will show. Out of 170 patients examined the following numbers were obtained: a tuberculous family history in 39 per cent.; a history of pleurisy in 25 per cent.; a history of hæmoptysis in 31·7 per cent.; and evidence of lymphatic disease in 12 per cent. The nature of onset of the patient's present illness should be carefully inquired into as it may shed some light upon the diagnosis to be subsequently made.

As indicated by the figures given above, a "hæmorrhagic onset" is characteristic of a fair proportion of cases, the disease being ushered in by a somewhat sharp hæmoptysis, prior to which little or no complaint of ill-health was made. Frequently the onset is more gradual, the patient complaining of such symptoms as anorexia, slight loss of flesh, occasional night sweating, cough with or without expectoration, and some diminution of strength. But this is not always so. In some cases of early phthisis the pulmonary symptoms are masked, the only evidence of disease being dyspepsia, occasionally with morning sickness, or anæmia, and thus the onset of the disease is so insidious as to escape the watchful eye of the most anxious guardian. On the other hand, an acute or subacute onset is met with, the disease being ushered in with symptoms which may be indistinguishable from those of acute pleurisy or influenza. After what may be a varied period of indifferent health the patient is suddenly seized with pleuritic or muscular pains, pyrexia, occasionally with rigors, malaise, headache, night sweating, cough with or without expectoration, and loss of flesh. In such cases the termination may be rapidly fatal, or the acute symptoms may subside and some measure of improvement follow, but the physical signs of pulmonary disease remain.

Before proceeding to the consideration of the various physical signs met with in the early stage of pulmonary tuberculosis it is necessary to bear in mind the sites primarily selected for the deposition of tubercle. The peribronchial, perivascular and subpleural tissues and the walls of the lung alveoli are the regions first invaded, and consequently the physical signs indicative of the early stage are referable to the presence of disease in one or other of these situations.

In cases characterised by early hæmorrhage there is invasion of the perivascular tissue by tubercle, although it does not necessarily follow that in all cases of perivascular infiltration there is hæmorrhage. A careful and methodical examination of the various regions of the chest must always be made. Inspection may reveal the presence of flattening, diminished movement, or muscular wasting over some particular region of the chest wall. Overend emphasises the diagnostic significance of venous varicosities in the cervico-dorsal region in early pulmonary tuberculosis and in a certain number of cases they are present, but they are more frequently associated with some degree of consolidation of the lung tissue. The deposition of the tuberculous nodule at one or other apex may give rise to some appreciable diminution of the normal percussion resonance. The apices should be lightly percussed during ordinary respiration, full inspiration, and forced expiration. Over the supra- and sub-spinous fossæ percussion should be more forcibly employed and the interscapular, subscapular, and axillary regions must also be carefully percussed. The condition of the tactile vocal fremitus and the voice resonance as appreciated by palpation and auscultation must be carefully noted. Increased vocal resonance at the left apex, as compared with the right, is of greater significance than the converse. Deviation from the normal in the quality of the respiratory murmur is, perhaps, the most constant physical sign in early tuberculosis of the lung. The mechanical effect following the infiltration of the interstitial lung tissue with tubercle is twofold. There is narrowing or occlusion of the lumen of some of the finer bronchi from pressure, while the normal expansion and relaxation of the elastic pulmonary tissue are interfered with and the ingress and egress of air are interrupted. Consequently the respiratory murmur may be feeble or entirely absent at one or other apex. It may be jerky and irregular in character, the irregularity affecting inspiration or expiration alone or both together. Some degree of irregularity of the respiratory murmur is occasionally present in nervous people while undergoing examination, but it is usually to be heard over the greater part of the lung area. When audible over a circumscribed area, and more especially when involving expiration, it points to invasion of the lung tissue by some morbid process. With a feeble inspiratory murmur there may be prolonged and harsh expiration or the respiratory murmur as a whole may be harsh in quality with expiration unduly prolonged. The adventitious sounds heard during the early stage of pulmonary tuberculosis depend for their presence upon the tissues primarily invaded by tubercle. Over the supra-spinous fossa and upper portion of the scapular region in a certain proportion of cases there is pleuritic friction with some diminution of percussion, resonance, and accentuation of the vocal resonance. This is the only evidence of disease present and presumably points to the subpleural deposition of tubercle. The constriction of the finer bronchi by nodules in the peribronchial tissue will give rise to the presence of rhonchi from narrowing of the lumen or the production of bronchitis. Sibilant or sonorous rhonchi during inspiration, or accompanying a prolonged expiration heard over a restricted area of lung tissue, more especially if associated with increased vocal resonance, should always be regarded with suspicion. Sibilant rhonchi are generally audible towards the end of inspiration, while those accompanying expiration are invariably lower in pitch. The detection of râles, however, is of greater importance. In many cases they are absent or so faint as to be almost inaudible; when present they occur during, or at the end of, inspiration, are fine in quality, and clicking or crepitant in character. A few cases are met with in which crepitant râles with feeble respiratory murmur are the early and only signs present and in which it may be presumed the walls of the lung alveoli are primarily invaded.

The presence of some of the physical signs mentioned above should not be regarded as sufficient in themselves to constitute a diagnosis of commencing pulmonary tuberculosis. In all suspicious cases the morning and evening temperature should be regularly recorded for a period of three weeks, so that any rise of temperature may be noted. A continuous evening rectal temperature reaching above 99° F. would point to the probability of tuberculous disease. The absence of pyrexia, however, must not be taken as contra-indicating the possibility of phthisis, as disease in the early and more advanced stages may be present without any appreciable rise in temperature. In doubtful cases a reaction to Koch's tuberculin should be sought for. A local inflammatory reaction and a definite rise in temperature should follow the injection of tuberculin in tuberculous subjects. Either tuberculin may be used, but the new tuberculin in doses of from half a milligramme to one or two milligrammes will be found to induce sufficient reaction for diagnostic purposes. Before employing tuberculin the temperature should be taken morning and evening for a period of not less than 14 days. While being subjected to the test the patient must remain in bed, and should the first dose fail to produce a reaction three days must be allowed to elapse before an increased dose be given. A rise in temperature of not less than 1° F. should be obtained before the diagnosis of pulmonary tuberculosis be made. The following cases illustrate the utility of tuberculin.

CASE 1.—The patient was admitted into the Consumption Sanatorium at Bridge-of-Weir on Jan. 21st, 1902, with a history of cough without expectoration and occasional night sweating. There had been slight hæmoptysis on one occasion, with some loss of flesh and strength of several months' duration. No particulars of the family history were obtainable. There had, however, been exposure to infection, as the patient had slept for four or five months with a companion suffering from pulmonary tuberculosis. On admission the patient was found to be well nourished but anæmic. The temperature was 98·8° F., the pulse was 88, and the respirations were 20. The weight was 8 stones 5 pounds 10 ounces. The chest measured 30 inches. The right clavicle was more prominent than the left. Over the right supra-clavicular and infra-clavicular fossæ movement was impaired, tactile fremitus and vocal resonance were increased, and percussion resonance was diminished. The

respiratory murmur was feeble and a sharp clicking râle was occasionally heard above the clavicle. Over the right supra-spinous fossa and right scapular region there was prolonged expiration with increased vocal resonance while over the scapular region alone pleuritic friction was audible. A dose of half a milligramme of the new tuberculin was injected, with due antiseptic precautions, into the left inter-scapular region. On the following day the temperature rose 2·4°, reaching 101·2°.

CASE 2.—The patient was admitted into the sanatorium on May 24th, 1902, with a history of cough without expectoration, night sweating, hæmoptysis, loss of flesh, and diminution of strength of five years' duration. As regards the family history, the father had died from some pulmonary disease the nature of which was unknown. On admission the patient was found to be fairly well nourished but somewhat anæmic. The temperature was 98·8° F., the pulse was 64, and the respirations were 20. The weight was 8 stones 4 pounds 10 ounces. The chest measured 30 inches. The left clavicle was more prominent than the right. Over the left supra-clavicular and infra-clavicular fossæ movement was impaired, the percussion note was distinctly hyper-resonant, and the respiratory murmur was feeble and indistinct. In the left mammary region fine crackling râles were audible. A dose of one milligramme of tuberculin was injected into the left forearm. Next day the temperature rose 5°, reaching 103·6°.

CASE 3.—The patient was admitted into the sanatorium on April 10th, 1902, with a history of cough without expectoration and loss of flesh of four months' duration. As regards the family history, two sisters had died from pulmonary tuberculosis. On admission the patient was found to be thin but of good colour. The temperature was 98·6° F., the pulse was 70, and the respirations were 18. The weight was 6 stones 12 pounds 4 ounces. The chest measured 30 inches. There was no limitation of movement or any appreciable diminution of percussion resonance. Over the right supra-clavicular and infra-clavicular fossæ inspiration was jerky. Over the left supra-clavicular fossa and immediately below the left clavicle inspiration was jerky and expiration prolonged and wavy in character, while at the end of inspiration a sharp clicking râle was occasionally audible. Over the left supra-spinous and scapular regions the respiratory murmur was harsh. A dose of a quarter of a milligramme of tuberculin was injected into the left inter-scapular region. Next day the temperature rose 2°, reaching 100·2° F.

CASE 4.—The patient was admitted into the sanatorium on May 24th, 1902, with a history of cough with expectoration and occasional night sweating with loss of flesh and appetite and increasing weakness of six months' duration. No particulars of the family history were obtainable. On admission the patient was found to be fairly well nourished and of good colour. The temperature was 99·6° F., the pulse was 76, and the respirations were 24. The weight was 8 stones 1 pound. The chest measured 30½ inches. There was some flattening beneath the right clavicle. Over the right supraclavicular and infra-clavicular fossæ percussion resonance was diminished, vocal resonance was increased, and the respiratory murmur was feeble and indistinct. Over the right supra-spinous and scapular regions the respiratory murmur was feeble and fine crackling râles were audible. The left lung appeared normal. No tubercle bacilli were found in the sputum. A dose of one milligramme of tuberculin was injected into the left forearm. Next day the temperature rose 5·8°, reaching 104°.

CASE 5.—The patient was admitted into the sanatorium on May 1st, 1902, with a history of cough without expectoration, breathlessness on exertion, and occasional night sweating, with loss of flesh and appetite of six months' duration. The mother had died from pulmonary tuberculosis. On admission the patient was found to be of good colour and well nourished. The temperature was 99° F., the pulse was 77, and the respirations were 16. The weight was 9 stones 7 pounds 4 ounces. The chest measured 30½ inches. At the right apex percussion resonance was diminished, vocal resonance was increased, and expiration was prolonged. Over the left subscapular and infra-axillary regions the percussion note was relatively dull, the tactile vocal fremitus and the vocal resonance were diminished, and the breath sounds were feeble, pointing to the effusion of fluid which was confirmed by paracentesis. A dose of a quarter of a milligramme of tuberculin was injected into the right inter-scapular region. On the following day the temperature rose 1·8°, reaching 100·2°. The local inflammatory reaction in this case was severe.

A brief consideration of the pathology of the various stages of pulmonary tuberculosis will emphasise the importance of early diagnosis in relation to successful treatment. The early stage is characterised by the simple presence of tubercles. In the intermediate stage there is pneumonic consolidation of considerable areas surrounding the tubercles, while the process of necrosis with softening is commencing in the tubercles themselves. The vitality of the tissues is necessarily compromised and arrestment of the morbid condition will seldom, if ever, take place except by the expulsion of the necrosed tissue and the formation and subsequent contraction of a clearly defined excavation. On the other hand, in the presence of comparatively healthy lung tissue and recently deposited tubercles the formation of healthy granulation and cicatricial tissue can under treatment be more readily induced and the stage of complete arrestment more speedily reached.

In conclusion, it may be confidently anticipated that if combined with prophylactic measures there be an earnest endeavour to diagnose existing cases of pulmonary tuberculosis in the early stage and submit them to immediate treatment a definite diminution in the prevalence of the disease will result and the prospect of increased health to the future manhood and womanhood of our country will be assured.

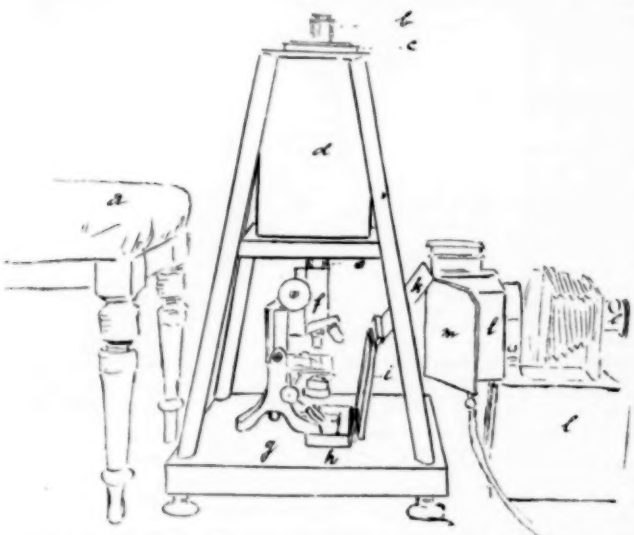
Bridge-of-Weir, N.B.

DIRECTIONS FOR PHOTOMICROGRAPHY.

BY FRANK CROSBIE.

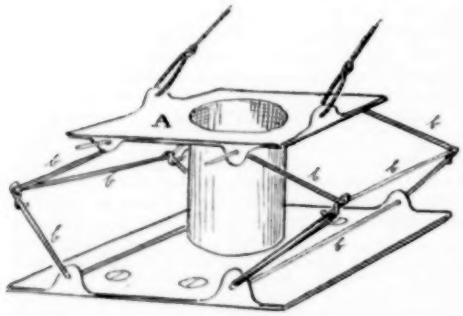
CONSIDERING the great increase in the use of photography during the last few years it is strange that photomicrographs have not been more generally produced. The cause of this probably lies in the supposition that the process is necessarily very difficult and the apparatus expensive. This is not the case, and anyone who can develop an ordinary negative can readily produce photomicrographs of a high class, the cost and difficulty being no greater than that of ordinary photography. A box camera that will work in conjunction with the microscope must be constructed. This is not difficult and any joiner or skilled amateur can soon make a light-tight box for this purpose at the cost of very few shillings. The camera shown in the illustration (Fig. 1) consists of a box, supported by four uprights, connected finally to a heavy platform. The whole is made of stout deal, stained mahogany colour, and the box is blackened inside a "dull black." It is so constructed that the top end of the box is adapted to take the detachable reversing back of an ordinary quarter-plate camera. Duplicate fittings can usually be obtained from the maker of any quarter-plate camera. At the lower end of the box is an aperture pierced in its floor, fitted with a moveable union to connect it with the microscope which stands on the platform beneath. The distance between the bottom of the camera box and the platform should be about an inch more than the height of the microscope, after the draw-tube has been removed, in order to facilitate removal and readjustment of the microscope. The length of the camera box and therefore the amplification obtainable is limited by the possibility of reaching the focussing screws and the mirror of the microscope, when the operator is seated on a chair looking down through the compound focusser on to the focussing screen at the top end of the box. In other words, the total height of the camera is governed by the length of arm of the seated operator. The union that connects the lower end of the camera box to the top of the microscope, the draw-tube having been removed, requires special care. It must move freely up and down in the aperture of the camera box and it should fit *inside* the tube of the microscope, and when in position it must be quite light-tight. It is made of zinc or card, as shown in the illustration (Fig. 2), and is fixed on the upper side of the floor of the camera box; the flange resting on the floor and over-reaching the margin of the aperture in the box cuts off any stray rays of light. The special stanchion hinges cause it to move

FIG. 1.



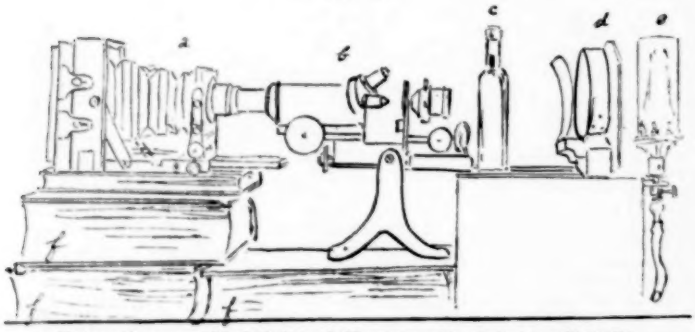
a, Chair in which the photographer sits when focussing. *b*, Compound focussing glass. *c*, Reversing back of camera. *d*, Light-tight box camera. *e*, Union connecting camera and microscope. *f*, Micro-scope. *g*, Platform on which the microscope stands. *h*, Blocks marking the position of the microscope. *i*, Light filter. *k*, Vulcanite shutter. *l*, Magic-lantern fitted with incandescent gas. *m*, Door at the back of the lantern opened.

FIG. 2.



Moveable velvet-lined zinc union to connect the camera box with the microscope. A, Flange attached to the union-tube, which falls through plate with circular aperture and is fixed to floor of box-camera.

FIG. 3.



a, Photograph camera with single lens. *b*, Microscope with eye-piece. *c*, Light filter (flat bottle filled with solution of bichromate of potassium). *d*, Condenser of magic-lantern. *e*, Incandescent gas burner. *f*, Books used to equalise levels of the instruments to that of the gas burner.

freely and perpendicularly in the aforesaid aperture. It can be lifted in an upward direction by means of a string passed through the side of the box at the top, the string being fastened by passing a loop of it over a suitable peg on the outside of the box, so that when released the union tube will fall into position into the tube of the microscope. The union tube should be lined with black velvet to prevent reflection of light. The platform on which the microscope stands should have blocks fastened to mark the exact spot to be occupied by the stand of the microscope, so that it may be immediately under the aperture through which the union tube falls. This also insures exact centering of the image thrown on the quarter-plate clear-glass screen, fixed at the top of the camera box. On the top of the camera box is fixed the reversing back of a quarter-plate camera, but the ground-glass focussing screen, which is useless in this work, must be removed and replaced by a sheet of thin *clear* glass free from bubbles and scratches. The lamp is placed on the floor and for comfort should be inclosed in a box. A magic-lantern fitted with an incandescent gas burner, with the door at the back opened, answers every requirement in this respect. Incandescent gas is most convenient—it is brilliant, steady, and of constant actinic value.

The stains selected in micrography often throw great difficulties in the way of the photographer, rendering it impossible to obtain really good negatives and necessitating the use of light filters of great depth of colour, with a corresponding diminution of actinic light value and an increase in the length of exposure. When it is known that a specimen is to be photographed the stain should be specially selected with a view to this if possible. Hæmatoxylin is suitable for sections. Gentian violet gives the best results with bacteria. Fuchsin should be avoided. In fact, it can be roughly stated that all stains on the blue or violet side of the spectrum answer best and stains belonging to the red end of the spectrum give the worst results. Golgi preparations give most satisfactory negatives. Sections stained with hæmatoxylin or other blue dyes are very actinic and it is necessary to exaggerate the shadow thrown by them. This is done by colouring the light before it enters the condenser of the microscope with a light filter or colour screen of a tint complementary to the stain. In most cases the screen sold by photographic dealers for landscape photography will be found sufficient; this is a light brown-yellow glass screen. Should the section be thin and the staining slight or faded greater depth of colour will be necessary in the light filter. This can be obtained by staining a film of gelatin on a glass plate with picric acid, or, better still, by using a glass trough or bottle filled with a solution of bichromate of potassium. The light filter, however constructed, must be placed between the light and the microscope. If a coloured glass screen it is fitted into a frame which is hinged to the platform on which the microscope stands so that it can be raised or lowered at discretion. To this frame is also hinged a sheet of vulcanite, in order to cut off all light from the microscope when manipulating the dark slide before and after making an exposure.

If possible, all preparations of a series to be photographed should be stained with the same dye, as this will simplify the calculations necessary to find the time of exposure, will suit one quality of plate and one light filter, and will render

possible an exact comparison of the various results and a correct relation of their several details. Apochromatic objectives should always be used. Achromatic objectives give a blurred image, as the visual and actinic foci are not coincident. The objective of the microscope should be polished and care should be taken that no dust has accumulated on the upper surface of the lens. The Abbé condenser must be carefully centred before each exposure. This is most important. The specimen to be photographed having been placed on the stage of the microscope and focussed, the best possible definition and illumination are obtained by moving the Abbé condenser to and fro. The *eye-piece*, which increases the amplification but mars the definition when this method is used, and the *draw-tube*, which reduces the area of the illuminated field, are now *removed*. The microscope is now placed on the platform in its proper position already marked under the camera box. The velvet-lined union is lowered and adjusted. The lamp is placed in position and the light filter is interposed between lamp and Abbé condenser. The image now thrown on the plain glass focussing screen by the microscope can with the aid of a compound focusser be sought for. To find this image, gently turn the focussing screw of the microscope so as to increase the distance between the objective and the cover-glass of the preparation. Only a small portion of the specimen can be focussed at one time. The most important features of the preparation should be clearly defined and the surrounding field of the specimen disregarded. The specimen outside the focal plane, though histologically indistinct, will nevertheless give a good image photographically. When the focus that shows the desired detail with the greatest clearness possible is obtained the vulcanite shutter is closed, the dark slide is placed in position, and the plate is exposed in the usual way.

The time of exposure depends on so many circumstances that it is impossible to give any but approximately correct directions. When incandescent gas is employed and a landscape light filter of a density increasing exposure threefold is made use of the following table will be found approximately correct:—

1 inch objective	magnifying	25	diameters	10 minutes.
½ "	"	50	"	25 "
¼ "	"	120	"	60 "
1/12 "	"	260	"	2½ hours.

These dimensions, it must be remembered, result when the objective alone is used. Two or three times the above exposures will do no harm, as it is almost impossible to overexpose in photomicrography. Backed chromatic plates should always be used; they will be found suitable for all blue- and red-stained specimens.

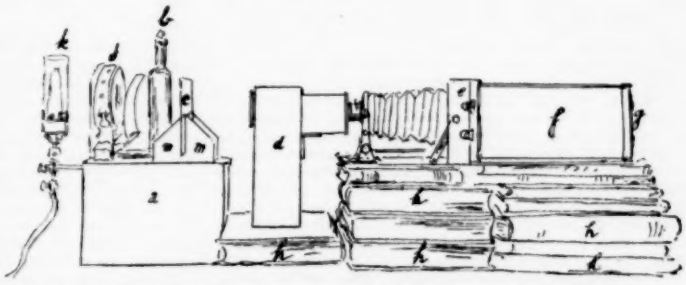
It is assumed that the reader is familiar with the photographic processes generally employed for making negatives, lantern slides, and paper prints. It will therefore not be necessary to enter fully into the details of development. A developer that will produce dense, clear negatives should be used. The following formulæ will be found suitable:—

I.	Sulphite of sodium	3 ounces.
	Hydroquinone	½ ounce.
	Bromide of potassium	½ ounce.
	Distilled water	25 ounces.
II.	Carbonate of sodium	6 ounces.
	Distilled water	25 ounces.

Mix equal parts of these two solutions. Development should not be stopped till the disc on the plate is quite black when examined by transmitted light and held about three inches from the dark-room lamp, and the image should show quite clearly at the back of the film through the glass by reflected light. Under-exposure gives grey weak negatives, often full of detail but too thin to print. In such a case make a transparency on a chloride of silver lantern-plate (Alpha). Intensify this transparency with uranium and make from the intensified transparency a new negative on a bromide of silver lantern-plate (black tone). Mercury should not be used for intensification, as the results are uncertain and the details in the shadows are liable to be clogged. By this means a quick printing negative of good colour is obtained without risking the original.

To determine the amplification given by each objective in this camera a photograph of a micrometer scale should be taken. All photographs made with the same objective in the camera will be on exactly the same scale as the negative thus produced, which will be found invaluable for measurements on negatives, lantern slides, and prints.

FIG. 4.



a, Magic-lantern box. *b*, Bottle containing solution of bichromate (light filter). *c*, Sheet of ground glass. *d*, Carrier holding section, with box to fit on lens, sliding in carrier. *e*, Photographic camera. *f*, Extension to increase the length of the camera. *g*, Reversing back of the camera. *h*, Bo ks to act as stage levelling the instruments. *j*, Magic-lantern condenser. *k*, Gas burner. *m*, Carrier holding ground glass.

Fairly satisfactory photographs of microscopic specimens can be obtained without making any special apparatus in the following manner: Fit to an ordinary camera a single or landscape lens (a doublet is not suitable) and replace the ground-glass focussing screen with a sheet of *clear* glass as previously described. Use a compensated *eye-piece* with the microscope and focus in the usual manner. Remove the light mirror from the microscope, place it in a horizontal

FIG. 5.

a.

b.

Taken with photographic camera without microscope (Fig. 4). *a*, With wooden extension. *b*, Without extension.

position with the lamp and light filter in front of it, and adjust the camera with the lens of the camera touching the eye-piece of the microscope. (Fig. 3.) Look with the naked eye into the clear-glass screen to ascertain that the apparatus is in a straight line. The camera should be racked out so that the photographic lens is placed at its own solar focal length from the focussing screen. This can be done with sufficient accuracy by focussing the image projected by the microscope. Move out the Abbé condenser to obtain even illumination. Looking through the compound focusser, carefully focus the image, using first the focussing screw of the camera and then the focussing screw of the microscope. The focus and position of the Abbé condenser will also affect the focus of the image on the screen. This is vitally important and therefore must not be forgotten. The Abbé condenser should be moved to and fro till its correct position is found. Actually, the further the condenser is from the stage of the microscope the better is the definition, but care must be taken not to reduce unduly the illumination. Expose and develop the plate as previously described. The time of exposure will be about the same for each objective as when using the special camera—i.e., when the ocular and draw-tube of the microscope are not used. The lens of the camera must be exactly adjusted to the eye-piece of the microscope and the instruments arranged in a right optical line; they must be brought to the same level by building a stage with books or other convenient material in order that the illuminated field may not be irregularly curtailed. The amplification depends on the focal length of the lens of the camera; therefore the position of the camera will not alter the size of the image, but the diameter of the illuminated field diminishes very rapidly as the distance between the eye-piece of the microscope and the lens of the camera is increased, and *vice versâ*.

It is sometimes desirable to make a photograph showing the whole of a section, which may measure half an inch in diameter. This is obviously impossible if a microscope be used, but such a photograph can readily be obtained by using an ordinary photographic camera with a wooden extension increasing the distance between the lens and the focussing screen. (Fig. 4.) A good wide angle photographic lens of short focus is attached to the camera. A carrier of cardboard or wood, blackened inside, is constructed to hold the section in front of the lens. This carrier is made on the principle of the old-fashioned photographic box cameras, and consists of two boxes, one sliding inside the other, thus enabling the photographer to vary the distance at which the section is placed in front of the lens, and at the same time preventing any rays of light entering the lens except directly through the section. An ordinary camera when extended to its utmost length is usually too short for this work, producing an image of about the same size as the original section. To obtain a larger image the distance between the lens and the focussing screen must be increased. A wooden extension shaped at one end to fit the back of the camera, and with the reversing back of the camera fitted to the other end, will effect this. The extension must of course be blackened inside to prevent reflection of light.

When using a photographic lens of five inch focal length, with the specimen seven inches from the diaphragm of the lens, an image will be in focus at 19 inches from the lens and the enlargement will be threefold. By placing the section nearer the lens and suitably increasing the length of the extension the image can be enlarged to any desired amplification. (Fig. 5.) The lamp must be placed on the table directly in front of the lens and object carrier, a sheet of fine ground glass and a suitable light filter being interposed between the lamp and the section in order to diffuse and to correct the light according to the colour stain of the section. The image is focussed on the clear glass screen by altering the position of the section and by using the focussing screw of the camera. Exposure and development of the plate require no modification.

In giving these directions, which are based upon personal experience and the verification of all the points emphasised, I have been as pointed and laconic as possible in language, using the imperative mood notwithstanding its inelegance, in order that my meaning might be as clear as possible, and especially for the instruction of those who have had little or no practical experience in photomicrography. I have appended drawings and photographs to illustrate the various methods discussed.

Gloucester-terrace, W.

A CASE OF HERNIA INTO THE FOSSA DUODENO-JEJUNALIS.

BY CHARLES T. ANDREW, B.Sc., M.B., CH.B. ABERD.,
JUNIOR DEMONSTRATOR OF ANATOMY, ABERDEEN UNIVERSITY.

THIS rare form of hernia was found in an old male subject in the dissecting room. When the abdominal wall was opened by a crucial incision in the course of dissection it was noticed that no small intestine was visible when the great omentum was thrown upwards; also that there was a large empty cavity in the pelvis between the sacrum and the bladder. As the parietal peritoneum was reflected on to the fundus of the bladder one and a half inches above the symphysis pubis I thought at first that the space was due to the fact that the bladder prior to hardening in formalin had been greatly dilated and so pushed the small intestine out of the pelvic cavity. There appeared also to be a large empty space under the left dome of the diaphragm of such dimensions that the closed fist could with ease be slipped under the costal margin, a thing which cannot be done when the subject has been hardened by formalin. In this space the whole of the gastric surface and anterior border of the spleen could be seen from the outside without first drawing the stomach to the left. The whole of the small intestine, with the exception of the lower six inches of ileum, lay in a large sac of peritoneum which ran across the abdomen, lying in the epigastric, umbilical, left hypochondriac, and left lumbar regions. To the left the sac extended to the extreme left of the abdomen; to the right as far as the margin of the right rectus muscle. Situated one inch above the bifurcation of the abdominal aorta and slightly to the left of the mid-line there was found a distinct semilunar-shaped opening looking downwards and to the right towards the cæcum, from which it was distant about two inches. The free margin of this ring was thickened and fibrous and stood out very distinctly as it arched over the entering bowel. At the left margin the inferior mesenteric artery came off the aorta and the left colic branch ran forward and upward in the left cornu of the opening. The right cornu, with the continuation of the left colic artery, arched over the bowel and then ran upward for a distance of three and three quarter inches to end at the duodeno-jejunal flexure opposite the second lumbar vertebra.

It so appeared that the opening of the peritoneal sac was displaced by the weight of the contents from the second to the fourth lumbar vertebra. The inferior mesenteric vein lay immediately to the left of the opening. The whole of the small gut with the exception of the lower six inches lay in a large hernial sac formed originally by the fossa duodeno-jejunalis described by Treves and situated at the commencement of the jejunum. This fossa, the orifice of which looked upwards and to the left and formed by a delicate fold of peritoneum passing from the beginning of the jejunum to the under surface of the transverse meso-colon, was found in five out of ten subjects.

The size of the fossa is such that, as a rule, it scarcely admits the tip of the little finger. In four of the cases in which it was present the margin of the orifice was thin and delicate, but in one old female subject the opening was bounded by a distinct ring, as in the case described, which ended over the duodeno-jejunal flexure, the left cornu formed by the left colic artery which ran in the margin and the right by the commencement of the mesentery.

In this case a fold of peritoneum passed from the duodeno-jejunal junction to the under surface of the transverse meso-colon, bounding a fossa which looked to the right but evidently quite apart from the fossa into which the commencement of the jejunum would slip at the first stage of the formation of the hernia, when the top of the jejunum slips into the fossa and is followed from above downwards by the rest of the small intestine. As the folds of peritoneum in this region passing from the jejunum to the transverse meso-colon are very variable and as it is necessary in the formation of this kind of hernia that the orifice of the sac should be distinct I propose to name the ring which I have described the "annulus colicus sinister," as the left colic artery runs in its margin. The large intestine was greatly distended and the transverse

colon crossed the hernial sac near its lower margin, being markedly narrowed for a distance of four inches to the left of the mid-line. The descending colon was thrown into a huge sigmoid loop which occupied all the abdominal cavity to the right of the rectus muscle and flattened out the gall-bladder against the under surface of the right lobe of the liver. There were old peritoneal adhesions between the gall-bladder and the hepatic flexure of the colon. The liver appeared to have been thrown back by the pressure of the colon, the lower margin crossing the sternum at the seventh costo-sternal junction, and the gall-bladder was situated opposite the eighth rib in the anterior axillary line. The under surface of the right lobe was deeply indented by the hepatic flexure of the colon. The transverse colon crossed the abdomen from the tip of the ninth right costal cartilage to the left anterior superior spine situated six and a quarter inches behind the tip of the xiphoid cartilage. Unfortunately during manipulation the sac was torn slightly, so that an attempt at reduction without first incising the wall was impossible, but as it stood reduction of the whole of the contents was easy, the bowels being empty and collapsed but showing no evidence of strangulation.

I am indebted to Professor R. W. Reid and Mr. H. M. W. Gray for kind assistance in making these observations.

Aberdeen.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

SHORT NOTE ON THE CURE OF TRACHOMA BY X-RAY TUBE EXPOSURE AND BY HIGH-FREQUENCY BRUSH DISCHARGES.

BY SYDNEY STEPHENSON, C.M. EDIN.,
AND
DAVID WALSH, M.D. EDIN.

TRACHOMA, or "granular lids," as is well known, is a formidable and obstinate contagious malady that, even in the most experienced hands, can rarely be cured within one or two years. Any remedy, therefore, that shortens the period of treatment to weeks must claim widespread and earnest attention. We believe that such a curative agent exists in two forms of electrical discharge—first, that given off by the x-ray focus tube, and, secondly, the brush discharge obtained from a d'Arsonval high-frequency apparatus. One case of the treatment of trachoma by focus-tube exposure has been reported by Mr. M. S. Mayou.[1] We have treated a single eye in four cases of severe bilateral trachoma in children. Two eyes were cured—that is to say, the granulations and conjunctival hypertrophy disappeared and have not returned after a period of several months. The remaining two eyes were greatly benefited and were well on the road to ultimate cure. The cures were effected by 17 exposures in the one case and by six in the other, with an average exposure of 10 minutes and a distance of about eight inches of the antikathode from the lid. The good effects were found to be equally marked with closed as with everted eyelids. 22 applications of a mild high-frequency brush applied by means of a vulcanite electrode connected with a d'Arsonval apparatus cured a severe case of trachoma in another patient.

The radiotherapy of trachoma presents several obvious advantages over the ordinary treatment by escharotics—as, for example, its painlessness, its great rapidity, and its simplicity. The fact that a severe malady like trachoma (which has led to the expenditure of many thousands of pounds of public money in this country alone) can be cured by exposure to an active focus tube and to a high-frequency brush suggests that the curative agency may be identical in both instances. This observation may possibly throw fresh light on the therapeutic action of the focus tube, a point about which little is really known. The common agency may be a brush discharge, visible from the high-frequency electrode and invisible from the focus tube. In any case the introduction of new and powerful methods of treating trachoma must have an important bearing upon the victims of ophthalmia in many countries.

[1] Transactions of the Ophthalmological Society, vol. xxii., 1902.

ARTHRITIS AS A COMPLICATION OF MEASLES.

BY ROBERT CRAIK, M.D. GLASG.

A HEALTHY boy, aged seven years, suffered from whooping-cough in June, 1902, which lasted for two or three months but did not seem much to impair his health. He had been quite well for over a month when he complained of pain in his left knee on Nov. 2nd. On the 1st he had been quite well and had helped to gather sticks for a bonfire on the 5th. His mother thought that he had hurt his knee in getting sticks from the hedge-roots. But he always maintained that he had not hurt himself, so that any injury he sustained must have been trifling. There was no sign of any scratch or bruise or of any swelling, but the lad limped a little. On the 3rd, as he complained less he was sent to school, but as he limped home at mid-day he was not allowed to go back. On the 4th and 5th he sat about the house looking out of sorts and occasionally complaining of his left knee. On the morning of the 6th he was covered with the rash of measles and he remained in bed all day. He was first seen on the 7th when he appeared to have a typical attack of measles, an epidemic of which prevailed at the time. He had slept well during the preceding night and was resting comfortably in bed. Nothing was said about the knee. On the 8th, however, the mother mentioned the matter and I found there was pain about the joint on pressure and on movement. The boy did not care to move the left leg at all, but lay on his left side with the joint flexed, in which position alone he seemed comfortable. There was little or no swelling or redness, but I suspected there was some effusion into the synovial cavity. The patient was feverish on the 7th, but on the 8th the temperature was normal when I visited him. The knee was covered with cotton-wool and a bandage was applied. It seemed easier for a few days, but movement was always painful and there was soon distinct evidence of effusion. The effusion increased and at my daily visits the temperature varied from normal to 99° or 100° F. On the 30th the effusion was very great and there was a faint blush on the inner aspect of the joint above the patella. The joint was opened freely on each side of the patella. A large quantity of synovial fluid escaped and a little pus which seemed to come from the interior of the joint was evacuated on pressure. After washing out the synovial cavity a drainage-tube was passed under the patella and out at the opposite side and left in for several days. Recovery appears to be quite satisfactory and the little stiffness will probably soon disappear.

This is an example of arthritis following so soon after measles as to suggest that the measles caused the joint affection. A history of injury often precedes pneumococcic arthritis, and the injury probably determines the attack. There is no mention of arthritis as a complication of measles in most of the text-books, certainly none in Osler's "Text-book of Medicine," in Allbutt's "System," or in Watson Cheyne's "Manual of Surgery." Rose and Carless say that arthritis sometimes attacks children *after* measles. Had it been scarlet fever instead of measles the arthritis would certainly have been attributed to the scarlet fever.

Consisborough.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

A Higher Mould Fungus isolated from a Case of Multiple Granulomatous Tumours.—The Resisting Powers of Staphylococcus Pyogenes Aureus against the Persalts of Mercury.—A Diphtheroid Bacillus isolated from Two Cases of Puerperal Fever.—A New Pathogenic Diphtheroid Bacillus.—The Morphology and Distribution of Bacillus Pestis and some Similar Microbe.

A MEETING of this society was held on Jan. 20th, Dr. E. KLEIN, the Vice-President, being in the chair.

Dr. W. S. LAZARUS-BARLOW made a communication on a Higher Mould Fungus that he had isolated from a case of Multiple Granulomatous Tumours. The patient, a man, aged 42 years, showed a number of raised and

reddened masses on an area of the back approximately a foot square at the point of the greatest agglomeration of the masses, but actually more or less covering the back and flanks between the scapulæ and the crests of the ilia. Many of the foci were as large as walnuts. From first to last when the patient was discharged improved he was under observation about two years. It was at first thought that the condition was syphilitic, but subsequently, after anti-syphilitic treatment had proved ineffectual, the provisional diagnosis was actinomycosis. By this time the masses had begun to show central softening and were opened with full antiseptic precautions. The pus so obtained was caught in a sterile test-tube. On examination it was found to contain a small number of spherical grains similar to those present in the pus of actinomycosis. Tubes of maltose broth were inoculated with the pus and a mould was obtained as the only growth. In portions of tissue removed at the same time from the man's back foci of a mycelium were found that stained by Gram's method and conformed satisfactorily with the growth obtained from the pus. Subsequent attempts to cultivate the organism from the pus discharged from the opened abscesses failed, only streptococci and staphylococci being obtained. The mould grew on all the ordinary media, but most satisfactorily upon those made with maltose and on potato. It was aerobic, grew better at 37° C. than at the room temperature, did not grow on gelatin, did not coagulate milk, formed acid, had a very slight diastasic action on starch, formed flocculent balls in liquid media leaving the medium itself clear, and on solid media appeared first of all as a white, filmy mycelium that grew superficially and into the depth, and subsequently became either waxy in appearance on the surface or covered with a velvety layer of coffee colour. In all cases the ultimate condition was of the last-mentioned kind. Aerial hyphæ were formed. The organism stained with the ordinary anilin colours as well as by Gram's method, and it was neither acid- nor alcohol-fast. The mycelium was branched and dichotomy was common though not invariable. In old cultures it was seen that the mycelial filaments broke up into chains of spores resembling those occurring in the streptothricæ in arrangement but oval in shape and much larger. In spite of the general resemblance to the streptothricæ in mode of growth it differed essentially in the far greater size of the hyphæ and of the spores. The organism did not appear to have a special form of fructification for its spores. Dr. Lazarus-Barlow had been unable to identify the mould.—Mr. A. G. R. FOULERTON said that the artificial cultures resembled sporothrix, though the sections of the tumour itself did not do so. Clinically, the case also resembled those examples of sporothrix infection which had been described, for the tumours were multiple and had a tendency to break down.

Dr. F. W. ANDREWES brought forward facts relating to the Resisting Powers of Staphylococcus Pyogenes Aureus against the Persalts of Mercury. It was well recognised that this was one of the most resistant non-sporing organisms both against heat and chemical disinfectants, but it was not sufficiently recognised that its resistance against mercuric salts was altogether exceptional. This fact was of special importance in surgical disinfection. Dr Andrewes described observations which he had made on a strain of this coccus which appeared to possess unusual powers of resistance and which in broth cultures resisted 1 in 500 perchloride of mercury for 45 minutes, and in pure water for 12½ minutes. By repeated passages through the disinfectant, in which it might be supposed that only the most resistant survived, transmitting their resistance to their progeny, a strain of staphylococci was produced which had even higher powers of resistance. The results finally obtained were as follows. The cocci resisted 1 in 500 perchloride of mercury in pure water for 20 minutes, 1 in 1000 perchloride of mercury in pure water for 50 minutes, 1 in 1000 perchloride of mercury in 0·3 per cent. salt solution for 80 minutes, and 1 in 1000 perchloride of mercury in nutrient peptone-broth for over four hours. The resistance against biniodide of mercury was equally great, but it did not in the least extend to antiseptics of other groups. Carbolic acid, 1 in 40, killed the cocci in less than two minutes, and 1 in 400 medical izal in less than one minute. These results might be exceptional, but in routine disinfection it was necessary to provide against the exceptional as well as against the commonplace.—Dr. F. J. POYNTON asked if Dr. Andrewes had made similar observations with regard to the cyanide of mercury.—Mr. BISHOP HARMAN said that in recent experiments which he had made on the staphylococcus pyogenes aureus and the coccus he had isolated from the South African veldt sore to ascertain the relative resistance of these organisms to perchloride of mercury, amongst other methods he had used that of very free dilution of the cultures with a large quantity of the antiseptic—viz., 1 cubic centimetre of a broth culture mixed with 49 cubic centimetres of the antiseptic to equal 1 in 1000 perchloride of mercury. In these conditions the staphylococcus pyogenes aureus had survived 20 minutes' exposure and the veldt sore coccus 40 minutes, beyond which he had not gone. He further noted a great increase of stickiness of the colonies due to the production of a glutinous "capsule" which he thought might act as a protective. It appeared that Abbot had noted this feature in 1891; further, Abbot had taken extraordinary precautions in his experiments to prevent clumps of organisms being exposed to the antiseptic, in which condition he supposed them to afford each other some protection from the action of the reagent.—Dr. KLEIN asked if Dr. Andrewes had compared the strain of staphylococcus with which he had experimented with ordinary laboratory cultures of the organism and suggested that the strain with which he had experimented might be especially resistant.—Dr. ANDREWES, in reply, said that he had not made any observations with the cyanide of mercury. He had not during his experiments noticed any increased stickiness of the colonies after treatment with perchloride of mercury.

Mr. FOULERTON and Dr. W. F. VICTOR BONNEY communicated a paper on a Diphtheroid Organism isolated from the Uterus in two cases of Puerperal Fever. This organism, which in morphological and cultural characteristics closely resembled the bacillus diphtheriæ, was isolated in pure culture from the cavity of the uterus of a woman on the seventh day after a normal confinement, and from the upper part of the cervical canal of a woman in whom, 14 days previously, a miscarriage at the end of the second month had occurred. In both cases there was considerable pyrexia and in both the patient recovered—in the second case, however, after a prolonged illness. The bacillus was, perhaps, a little larger and coarser than bacillus diphtheriæ, but presented the same variation of morphology characteristic of the latter organism. On nutrient agar cultures, after 24 hours' incubation at 37° C., long, beaded, spindle-shaped, pear-shaped, Indian-club-shaped, and coccal forms might be seen. In broth cultures the organism appeared chiefly as a rather short, evenly staining rod, but even in this medium other forms were occasionally seen. The bacillus stained by Gram's method and was not pathogenic for guinea-pigs and the other animals on which it was tested. Whilst the bacillus belonged to the so-called "diphtheroid" group of organisms, it was to be easily distinguished from the bacillus diphtheriæ by: (1) the somewhat coarser shape; (2) by the fact that no appreciable amount of acid was produced in glucose peptone broth cultures after six days' incubation at 37° C.; and (3) by the fact that it was non-pathogenic for the guinea-pig. Mr. Foulerton and Dr. Bonney had met with a similar organism once in a case of catarrh of the cervical canal, and had also isolated a similar culture from a case of phagedæna of the penis; they also thought that it might be allied to the "diphtheroid" organisms which had been described in cases of noma vulvæ and which they themselves had found in cases of cancrum oris. There was no direct proof that the bacillus was pathogenic in the cases of puerperal fever from which they had isolated it, but they thought that on the whole there was a strong probability that its presence in the uterus was the cause of the symptoms.—Dr. G. LESLIE EASTES said that he had found in the pus from a case of urethritis of a man an organism which closely resembled that described. It did not, however, stain well by Neisser's method and was not pathogenic to animals.—Mr. K. W. GOADBY said that he had found an almost similar organism in pyorrhœa about the gums. It was not acid-fast and did not stain by Neisser's method.—Mr. HARMAN said that he had found a similar organism in the conjunctival sac in a case of ophthalmia neonatorum. The organism was not pathogenic to animals.—Mr. FOULERTON, in reply, said that because these growths resembled one another there was no reason for regarding them as the same. With regard to their occurrence in cases of urethritis he said that he had examined 56 cases of that disease and had never come across a diphtheroid bacillus. The point of interest in the present paper was that a definite organism had been found in two definite cases of puerperal fever.

Dr. KLEIN described a new Pathogenic Microbe belonging

to the group of Diphtheroid Bacilli. It was found in white rats, causing in these animals extensive consolidation of the lungs. In the hepatised parts the alveoli and infundibula and bronchi were filled with, and distended by, fibrinous exudation, red and white blood corpuscles, and continuous masses of the above microbe. Microscopic specimens and lantern slides of the microbe as it occurred in the lungs and under cultivation were shown. The morphological (including positive Neisser's test) and cultural characters (including acid production) of the microbe appeared identical with those of the bacillus diphtheriæ. Small or large doses of culture caused on inoculation into rodents a firm tumour which gradually enlarged to considerable size and in the course of about a fortnight led to the formation of an abscess. This ultimately opened spontaneously and led to complete recovery. No fatal issue in rats or guinea-pigs had been produced by even large doses of the culture. Diphtheria antitoxin, 400 or even 600 units per half-grown guinea-pig, had no power to neutralise the pathogenic action of a small dose of the culture.

Dr. KLEIN exhibited lantern sides illustrating some points in the Morphology and Distribution of the Bacillus Pestis and some Similar Microbe.

OBSTETRICAL SOCIETY OF LONDON.

Discussion on Puerperal Insanity.

A MEETING of this society was held on Jan. 7th, Dr. PETER HORROCKS, the President, being in the chair.

Dr. ROBERT JONES opened a discussion on Puerperal Insanity. His paper was based upon a personal experience of 259 cases of puerperal insanity divided into 120 cases commencing during the actual puerperal period, 83 during lactation, and 56 during pregnancy. Insanity was stated to occur once in every 700 confinements. It was stated to be of a characteristic form after confinement, amounting to an almost nosological entity; but this was not the case during pregnancy or during lactation, there being no definite type of insanity occurring in connexion with these two stages. The divisions were, however, more convenient than typical. The following propositions were advanced by Dr. Jones:—1. The insanity of pregnancy was more common in first confinements among single women, the disappointment, shame, and disgrace of illegitimacy being an important factor in the mental breakdown. 2. During pregnancy the mental condition was more often acute melancholia than acute mania and suicidal symptoms, which occurred in 41 per cent., had to be carefully guarded against. 3. The insanity of pregnancy was divided into that occurring during the early months and that occurring during the later months, and in these the nearer the insanity in point of time to the confinement the more acute were the mental symptoms. Insanity was not more frequent when the sex of the child was male. 4. The insanity of the puerperium came on after the first confinement in 33 per cent. of the cases and supervened suddenly rather than gradually. 5. The cases which occurred during lactation presented characters of marked general physical exhaustion and mentally were more often of the depressed than of the maniacal form. Lactation insanity became chronic oftener than the insanity of the other periods. There was a tendency to low forms of inflammation, thrombosis, gangrene, and phthisis during the insanity of lactation. Both suicidal and infanticidal promptings were more common in lactation than in puerperal cases—that was, in cases where insanity commenced more than six weeks after confinement. 6. The early symptoms of threatening insanity were loss of sleep and headache, and these should be a forewarning of mental breakdown. The busy delirium of hallucinatory type ending in acute restless, purposeless mania with religious and erotic delusions, was characteristic of this variety. 7. As regards etiology, heredity was more marked and in the direct maternal line in puerperal and lactational insanity and was equally paternal and maternal in the insanity of pregnancy. A previous record of hysteria was frequent in puerperal insanity. The question of marriage of hysterical persons was considered. 8. The pathology was that of heredity and stress. Was the stress due to a toxin? 9. As regarded prognosis, cases of insanity during early pregnancy improved towards the end of pregnancy, whereas those of late pregnancy became worse at the puerperium. Puerperal insanity was markedly recoverable. Improvement was rapid, being often complete in three months, but generally took from four to five months. 10. With regard to treatment, all cases presenting headache and sleeplessness must have absolute quiet and rest, and sleep must be procured. Home treatment was desirable in all cases if possible. Unusual and sudden impulses of suicide and infanticide must be guarded against. The presence of the husband aggravated the symptoms. There was much necessity for a liberal and stimulating dietary. Change was necessary in puerperal insanity when cases tended to become stuporous. Menstruation was a sign of mental improvement. Purgatives and iron were well borne. The following special questions were put forward by way of criticism. 1. Was there such a disease as puerperal insanity—a mental alienation which was either caused by the puerperium or an accompaniment of this physiological crisis? 2. If there was, were the mental conditions due to toxæmia or to septicæmia, or to both? Or was the delirious mania which occurred in connexion with this period due to extraordinarily emotional disturbances? How far did the moral factor enter into the etiology, and how far did pregnancy in the unmarried state influence the causation of insanity? 3. What was the relation between mania and melancholia? 4. What was the essential pathology of this disease? 5. What was the relation between albuminuria and pregnancy? also between albuminuria and the puerperal state? 6. In Dr. Jones's cases, so far as the history could be obtained from the relatives or those present, no prodromata of insanity beyond sleeplessness and headache were as a rule noticed and the onset of insanity was sudden; what was the nature of the onset in the practice of obstetric physicians? 7. As to prevention and treatment, did hysteria in youth manifest itself by insanity in later life at the puerperal or other physiological crisis, and should marriage be discountenanced in these? What views should be generally held as to the marriage of neurotic persons? What were the views as to home and asylum treatment, as to local and general treatment, and, a more especially important point, as to the induction of premature labour?

Sir JOHN WILLIAMS dwelt upon the peculiar condition of the nervous system in pregnancy, parturition, and the puerperal state, and reviewed briefly the pathology of puerperal insanity. He strongly deprecated the resort to surgical measures in the treatment of this insanity.

Dr. G. F. BLANDFORD said that beyond question the earliest symptom of approaching mental trouble was loss of sleep, and this should be most closely watched and every precaution taken that the patient should not be disturbed by noises or talking in the room, by the child being brought to be nursed, or by the visits of friends. With regard to Dr. Jones's question, whether the mental disturbance was due to toxæmia or septicæmia, or both, it must be remembered that toxæmia and septicæmia were different things. Septicæmia produced puerperal fever, not puerperal insanity.

Dr. G. E. HERMAN said that the main duty of the general practitioner and the obstetric physician in regard to puerperal insanity was to prevent it. Treatment was mainly in the hands of the alienist. To prevent puerperal insanity the great things were to see that the patient got food and sleep. If sleep was absent he thought that the best hypnotic was alcohol. There were objections to alcohol, of which in the present day no one was in danger of losing sight. Every hypnotic, if too much was taken, did harm, but the harm done by alcohol, if taken too freely, was far less and far slower in coming than that done by chloral, bromide, morphia, sulphonal, or any other hypnotic, if taken habitually for long periods. Medical men were not justified in taking upon themselves the responsibility of discountenancing a proposed marriage. The utmost that a medical man should do was to express to those concerned whatever fears he might have as to the result of marriage.

Dr. C. A. MERCIER took exception to the statement that headache was a common prodroma of puerperal insanity. The only trustworthy indications, he thought, were sleeplessness and loss of appetite. He did not think that single women who became mothers suffered much emotional stress as a rule. Many of them were already half-witted and the insanity of the puerperium was only an exaggeration of their usual state. The rest were for the most part upon a low moral plane. He protested strongly against the suggestion that puerperal mania could be treated satisfactorily at home and maintained that institution treatment was always best.

Dr F. H. CHAMPNEYS fully indorsed all that had been

said about sleeplessness as the striking symptom of threatening insanity and about the pre-eminent value of alcohol as a sedative in such cases. It seemed to him that if mental distress were a factor in producing puerperal insanity its frequency after illegitimate births ought to vary directly with the moral standard. It was well known that the moral standard with regard to such matters varied greatly in different countries. If the above contention were true the proportion of cases of insanity in single mothers ought to be lowest in immoral and highest in moral countries. As regarded toxæmia and its relation to pregnancy he did not think that the explanation given in the paper would altogether suffice. Effete products were doubtless prevalent after confinement; on the other hand, the sense of physical and mental comfort and relief ordinarily experienced after delivery was proverbial. He did not think that this would be the case if ordinary toxins were the usual cause of insanity after labour.

DR. W. LLOYD ANDRIEZEN stated that the division into insanity of pregnancy, of the puerperium, and of lactation was a conventional and not a nosological classification. He concluded from a careful study of statistics that illegitimate pregnancy was twice as frequently followed by mental disorder as legitimate pregnancy. He regarded puerperal insanity as comprising three main types of mental disorder—viz., first a collapse delirium following upon parturitions attended with marked exhaustion and hæmorrhage; secondly, an acute confusional insanity with hallucinatory delirium (frequently misnamed "mania"); and thirdly, mania or melancholia proper or alternating manio-melancholic insanity.

DR. F. W. MOTT said that among the large number of cases recorded by Dr. Jones there was not a single case of gangrene; perhaps, therefore, he might be allowed to relate an instance which he had seen in a woman certified as suffering from puerperal insanity who was admitted into one of the London county asylums. This patient not long after admission developed signs of symmetrical gangrene of the feet. The child had been born dead and the woman was suffering from septic endometritis. Her mental condition improved when this was treated.

DR. R. PERCY SMITH said that with regard to the early symptoms he thought that next to sleeplessness, restlessness and early confusion of thought were more important than headache. There was no definite form of mental disorder which could be looked upon as absolutely characteristic of puerperal insanity, and cases might be of the delirious, confusional, maniacal, melancholic, stuporous, or delusional type. He had very little personal knowledge of illegitimacy as a cause but called attention to Dr. T. S. Clouston's statement that 75 per cent. of the puerperal cases admitted to Morningside Asylum followed illegitimate births. Another point in the etiology was that 26 per cent. of the cases admitted to Bethlem Hospital had had a previous attack of insanity, either one before marriage or one after marriage, which was not puerperal in origin or a previous puerperal attack. He said that alienists constantly found a history of previous "hysteria" in patients admitted to asylums which when carefully inquired into was found in many cases to have been a previous attack of definite mental disorder euphemistically called "hysteria." He was sure that such patients ought not to marry.

DR. E. W. WHITE thought that Dr. Jones's proportion of occurring cases was too low, probably 1 in 400 confinements was nearer the mark, for there were many which did not go to the asylum for treatment and of which no records were obtainable. He drew attention to certain of the mental symptoms and to the temperature charts in this disease. The obscene language, erotic tendency, and self-abuse were probably of peripheral origin, from abnormal uterine conditions, altered lochia, &c. In nearly all his cases there was an elevation of temperature of from one to two degrees in the evening, with a morning fall of a degree or less, lasting from ten days to a fortnight, then a subnormal temperature for several weeks. Frequent baths with scented soap were necessary on account of the perverted skin secretion.

DR. W. S. A. GRIFFITH stated that with regard to the insanity of pregnancy there was a group of cases quite distinct in which the main feature was the apprehension of the patient, either real or simulated, that unless the pregnancy was terminated she would become insane; be looked upon all such cases with the gravest suspicion, not of insanity, but of rather the reverse—namely, as an ingenious method of putting strong pressure on the medical adviser to produce abortion.

DR. T. SEYMOUR TUKE agreed with previous speakers in the necessity for good feeding and urged the early resort to artificial feeding if called for. While admitting the great value of alcohol the danger of forming a habit must not be lost sight of.

DR. T. CLAYE SHAW referred to the question of the existence of a mental disorder due to the puerperal state. It appeared to him that there were two classes of cases really existent, but both characterised by the delusions, incoherence, and other mental symptoms supposed to be pathognomonic of insanity due to the puerperal state alone. Insanity characterised by prominence of sexual mental demonstration might occur in young women at the developmental epoch or in women of middle or advanced age in whom there were no uterine or ovarian complications of any kind to be passed through, just as delusions of a sexual character might be seen in boys and men accompanied by acts of masturbation, and yet there was no occasion to attribute the symptoms to influence from the genital organs at the moment. When, however, the temperature was higher than was usually met with in acute insanity and the symptoms came on shortly after parturition, there was a strong argument in favour of a direct connexion between the mental and bodily states, especially when there was a history of hereditary taint, together with the probability of the presence of a septic condition.

DR. J. M. AMAND ROUTH urged the desirability of having intermediate receiving houses, or a nursing home, where women suffering from such temporary insanities as those under discussion could be received and treated. Such a plan would avoid the stigma of having been in an asylum and would make it much easier to get the friends of the patient to agree to her removal.

THE PRESIDENT thought that obstetricians saw these cases, as a rule, at a much earlier stage than did the alienists. Perhaps for this reason, and because of the shortness of time, the introducer of the subject had said but little about diagnosis. When the patient was admitted into an asylum the diagnosis had been made, but in the earlier stages it was not always easy to say that a case amounted to actual insanity. He considered that the refusal of food was a far graver symptom and pointed much more certainly to insanity than did sleeplessness.

DR. JONES replied briefly.

LARYNGOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on Jan. 9th, Mr. E. Cresswell Baber, the President, being in the chair.—The following officers were appointed for the year:—President: Dr. P. McBride. Vice-Presidents: Mr. A. A. Bowlby, Dr. Dundas Grant, Dr. P. Kidd, and Mr. C. J. Symonds. Treasurer: Mr. W. R. H. Stewart. Librarian: Dr. StClair Thomson. Secretaries: Dr. J. Donelan and Dr. E. Furniss Potter. Members of the Council: Sir Felix Semon, Mr. E. Cresswell Baber, Mr. C. A. Parker, Dr. W. Permewan, Mr. R. Lake, and Mr. L. A. Lawrence.—Sir Felix Semon exhibited a case (which had been previously shown at the November meeting of the society) of Ulceration of the Left Tonsil with Enlargement of Numerous Cervical Glands on both sides of the neck (? malignancy) in a man, aged 70 years. It was now seen that the ulceration had disappeared and that the tonsil had become much smaller, whilst the enlargement of the cervical glands had considerably diminished. Malignancy was now excluded. The case was shown again as affording valuable evidence that ulceration of a tonsil in old people with enlarged glands must not necessarily be looked upon as malignant.—Dr. P. Watson Williams exhibited new designs for Sphenoidal Sinus Cutting Forceps and a Laryngeal Spray.—Dr. A. Bronner showed a drawing and read notes of a case of Suppurative Ethmoiditis and Frontal Sinusitis after radical operation for Nasal Polypi. The nose had been curetted on three occasions with Meyer's ring-knife. Four weeks after the last operation the patient began to have pain, a high temperature, and became semi-comatose. The nose and forehead became swollen. Both frontal sinuses were opened and found to be full of pus. The dura mater was exposed. The patient was relieved for 12 hours after the operation and then died. The anterior part of the left frontal lobe was found to be necrosed and there was extensive purulent basal meningitis.—Dr. H. L. Lack showed a man, aged 59 years, with Aphonia of six months' duration who had a similar attack

last year. He spoke as if the glottis were closed but could sing with a natural voice.—Dr. McBride was of opinion that this case was one of spastic aphonia.—Dr. Lack also showed a microscopic section from a Large Ulcer of the Tonsil in a woman, aged 25 years, showing (?) tubercles. There was no history of syphilis but the case yielded immediately to iodide of potassium.—Dr. Lack also showed a Microscopic Section of a Cyst of the Ventricle of the Larynx opened when operating on a case of malignant disease of the larynx.—Mr. Lake exhibited specimens of New Growths removed from the Nose: (1) of the Posterior Extremity in a male, aged 52 years; (2) of the Septum and Inferior Turbinal in a male, aged 28 years; and (3) of the Inferior Turbinal in a patient, aged 72 years (an old lupus case).—Dr. H. Tilley showed a case of Large Hypertrophy of the Mucous Membrane in the Arytenoid Region (so-called inter-arytenoid pachydermia) in a robust-looking man, aged 48 years.—Dr. Donelan showed a specimen of a Large Naso-Pharyngeal Fibro-Myxoma with prolongations extending to the anterior nares in a youth, aged 18 years.—Dr. Barclay Baron showed a case of Naso-Pharyngeal Malignant Disease in a woman, aged 50 years. The patient had complained of deafness and nasal obstruction and discharge of blood and pus from the nose for about eight months. Three months previously a hard, irregular growth had been removed by scraping from the naso-pharynx with relief of all the symptoms. The symptoms had again returned and the naso-pharynx was filled with growths which protruded into the nostrils. The nature of the growth was uncertain; in places it had the appearance of lympho-sarcoma.—The President, Mr. W. G. Spencer, Dr. McBride, Dr. W. Hill, and Dr. Pegler discussed the case.—Mr. Atwood Thorne showed a case of Epithelioma of the Larynx in a man, aged 60 years. There had been hoarseness for six months previously; the left cord was seen to be fixed in the middle line and a growth was observed involving the left arytenoid and ary-epiglottic fold. There were slight tenderness to external pressure and a large gland under the ramus of the jaw on the left side. There was no history of syphilis. Potassium iodide had been given for the last fortnight, but without any appreciable benefit. The case was discussed by the President, Dr. Lack, Sir Felix Semon, Mr. Waggett, Dr. Dundas Grant, and Dr. McBride. The opinion expressed was that the case was not suitable for operation.—Dr. Fitzgerald Powell showed (1) a case of Infiltration of the Pharynx and Post-nasal Space in a man, aged 45 years, probably syphilitic; and (2) a Growth in the Post-nasal Space appearing below the soft palate in an infant, aged 18 months, for diagnosis.—Mr. Spencer showed a case of Symmetrical Swellings of the Gum at the posterior extremity of the alveolar border of each upper jaw in a woman, aged 37 years.—Dr. W. H. Kelson showed (1) a woman shown at a previous meeting suffering from Aphonia due to a rounded growth originating in the left ventricle of the larynx which had been removed, and on examination under the microscope was found to be a fibroma undergoing mucoid degeneration; and (2) a case of Recurrent Fibrous Polypus of the Nose in a man, aged 26 years.—Dr. Dundas Grant showed a case of Chronic Laryngitis with Inter-arytenoid Pseudo-pachydermic Swelling probably due to purulent rhinitis in which the hoarseness had much diminished and the inter-arytenoid swelling had become smaller during the use of a nasal wash for one week.—Dr. Dundas Grant also showed a case of Hereditary Specific Perforation of the Left Anterior Pillar of the Fauces.

DERMATOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on Jan. 14th, Dr. H. Radcliffe Crocker being in the chair.—Dr. Radcliffe Crocker showed a middle-aged man who for nine weeks had been affected by the appearance of reddish-pink, oval, slightly elevated, and slightly desquamating Patches on both Flanks and on the Left Arm. The patches were about three inches long by two inches broad and their long axes lay in the direction of the lines of fissure of the skin. They had been apparently somewhat benefited by treatment and the reason for showing the case was to ascertain the opinion of the members as to whether it was probably an early stage of mycosis fungoides or not.—Most of the members thought that the evidence was not sufficient to lead them to suspect mycosis fungoides.—Dr. J. H. Sequeira showed a man who had had Lupus Erythematosus of typical appearance affecting the scalp, face, and ears for four years and who for the last year had also suffered from a papulo-vesicular and weeping eruption resembling eczema on the arms, buttocks, and thighs. The question was whether the second eruption was a simple eczema or whether it was one of those very acute phases of lupus erythematosus of which examples had been shown to the society.—Most members, though admitting the difficulty of making a definite diagnosis without watching the case, were inclined to believe that the disease on the extremities was really eczematous.—Dr. A. Whitfield showed a child, aged three years, suffering from Tinea Tonsurans of the microsporon variety treated by x rays. The child had had two patches of the disease for many months and one of these had been treated first. In all 14 exposures had been given, with the result that every hair, both sound and diseased, had fallen out entire one week after the cessation, and this patch was cured. The hair was beginning to grow again slowly three weeks later. The other patch was under treatment and had had ten exposures without any hair falling out. Slight reddening had, however, begun to be visible and Dr. Whitfield thought that a very few more exposures would cause shedding as before. He pointed out that a little more experience was required before introducing the treatment generally and that it must be carried out carefully, as in some cases the hair had apparently not returned, but he thought the method compared favourably with all others in rapidity, cleanliness, and painlessness. It was, of course, best adapted for patchy cases.—Dr. J. M. H. M'Leod showed a child, aged six years, with a rapidly developing diffuse and areate Alopecia. The whole duration of the disease was three weeks and already most of the hair on the head was lost. The scalp was very scurfy and entirely free from oily seborrhœa. There was some plugging of the follicles but no micro-organisms had been found either in the scales or hairs. The number of clavate and other forms of atrophied hairs present was very striking.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—The fourth meeting of the session of this society was held in the medical library of University College on Jan. 14th, Mr. G. Munro Smith being in the chair.—Mr. J. Paul Bush, C.M.G., showed a Fibroid Tumour of the Uterus and Papillomatous Cyst of the Ovary removed by operation. A fistula of the ureter ensued which healed completely without further surgical interference.—Dr. E. W. H. Groves, Dr. J. L. Firth, and Dr. W. C. Swayne remarked on the specimen.—Mr. E. H. E. Stack showed a most interesting series of Contracted Pelves and pointed out that it was those cases where a moderate amount of contraction was present that gave rise to the greatest difficulty, as in extreme cases of contraction the deformity was usually diagnosed at a much earlier period.—Dr. Swayne and Mr. Munro Smith spoke on the subject.—Mr. A. W. Prichard read notes on a case of Ruptured Intestine successfully operated upon in which there was tuberculous disease of the peritoneum.—Mr. C. A. Morton, Mr. Munro Smith, and Mr. Bush commented on the case.—Dr. H. G. Kyle read notes of a case of Perforated Typhoid Ulcer that he had operated on in which the perforation could not be efficiently closed with sutures and in which he had placed the perforated intestine beneath the abdominal incision, surrounding it with gauze; the patient eventually died from a continuance of the enteric fever.—Dr. J. O. Symes, Mr. Bush, Mr. W. H. Harsant, Mr. Stack, Dr. Groves, and Mr. Morton spoke on the subject.—Mr. H. F. Mole read a paper and showed the specimens of two cases of Ruptured Tubal Pregnancy; in one the rupture had taken place into the general peritoneal cavity and in the other between the layers of the broad ligament.—Mr. T. Carwardine made some remarks on the paper.

SOUTH-WEST LONDON MEDICAL SOCIETY.—A meeting of this society was held on Jan. 14th, Surgeon-Major Mark Robinson, I.M.S., the President, being in the chair.—Mr. P. M. Yearsley read a paper on the Indications for the Mastoid Operation. He said that the mastoid operation for the relief of acute suppuration in the adnexa of the middle ear and the modified complete radical post-aural operation for the cure of chronic middle ear discharge had taken an important place in modern surgery. The operations originated by Schwartze, Stäcke, and Ballance and the complete post-aural operations were briefly explained. These operations belonged to one of two groups: (1) the opening of the mastoid antrum without interfering with the middle ear; and (2) the opening of the antrum and the formation of one large cavity common to

it and the tympanum. Roughly speaking the former was specially adapted to the relief of acute cases and the latter to the cure of chronic suppuration. The indications for the mastoid operation were discussed under the heads of acute and chronic diseases. Under acute diseases were included: (1) acute middle-ear suppuration with invasion of the antrum; (2) an acute exacerbation in the course of a chronic suppurative otitis media; (3) influenzal mastoiditis; (4) secondary infection from a meatal abscess; and (5) acute middle-ear tuberculosis. Chronic conditions in which the mastoid operation was called for included: (1) chronic suppurative otitis media; (2) recurring discharge; (3) facial paralysis; (4) cholesteatoma; (5) persistent mastoid pain; (6) meatal stenosis; (7) Bezold's mastoiditis; (8) mastoid fistula; (9) necrosis; and (10) as a preliminary to other operations.—A discussion followed the reading of the paper.

EDINBURGH ROYAL MEDICAL SOCIETY.—A meeting of this society was held on Jan. 16th, Dr. Prentice being in the chair.—Dr. Peter McBride read notes on some Abdominal Cases which presented difficulty of diagnosis. Three of them had been supposed to be intestinal obstruction but after examination they were diagnosed as gastro-intestinal influenza, alcoholism, and distended bladder. Another case with symptoms like those met with in gall-stones was not diagnosed as the patient got well without operation.—Dr. T. W. E. Ross read notes on a case of Œdema Glottidis, for which tracheotomy was performed. The patient had symptoms of renal disease. The cause of the œdema was doubtful.—A dissertation on Gait by Dr. C. M. Campbell was read in his absence by Dr. H. J. Dunbar. After describing and analysing the mechanism of walking in a normal individual he showed the value of gait as an aid to diagnosis in some pathological conditions.

GLASGOW NORTHERN MEDICAL SOCIETY.—A meeting of this society was held on Jan. 13th in the Royal Infirmary.—Dr. John Macintyre gave a very interesting lantern demonstration on Electro-therapeutic Apparatus in the lecture-room, with special reference to affections of the œsophagus and respiratory passages, after which the members inspected the new electric pavilion and were shown the apparatus and instruments.—The meeting was brought to a close by a vote of thanks being accorded to Dr. Macintyre and the superintendent of the infirmary.

Reviews and Notices of Books.

Encyklopädie der Mikroskopischen Technik, mit besonderer Berücksichtigung der Färbelehre. Herausgegeben von Professor PAUL ERHLICH, Dr. MAX MOSSE, Dr. RUDOLF KRAUSE, Dr. HEINRICH ROSIN, and Professor Dr. CARL WEIGERT. Mit zahlreichen Abbildungen. Berlin: Urban. Wien: Schwerzenberg. 1903. Abtheilung I., pp. 400, Preis 10 Mark. Abtheilung II., pp. 400, Preis 10 Mark. (*Encyclopædia of Microscopy, with Special Description of the Art of Staining.* By Professor EHRLICH, Dr. MOSSE, Dr. KRAUSE, Dr. ROSIN, and Professor CARL WEIGERT. Two Parts, each of 400 pages, with numerous Illustrations. Berlin: Urban. Vienna: Schwarzenberg. Price 10*s.* each part.)

AN incredible amount of time and attention has been bestowed upon the technical details of microscopy during the last two or three decades. Sections obtained by mechanical means of the uniform thickness of a fraction of a millimetre of the various tissues have been examined in fluids like the aqueous humour and the physiological saline solution, which are as nearly as possible identical with the normal conditions; they have been exposed to the action of innumerable acid and alkaline solutions of different strengths, to the influence of salts of many metals, to alcohol of various degrees of specific gravity, to clarifying oils, and to numerous staining agents, and with each new agent or method new features in the tissues under examination are discovered and a better understanding of them is arrived at. The application of potassium bichromate, the employment of osmic acid, the double and triple staining of Ehrlich and Weigert, the silver nitrate and gold methods of Golgi and of Ramon y Cajal, and the use of formol have all aided in establishing the prevailing conceptions of the structure of our bodies. In the present encyclopædia the student, or, indeed, the professor, who is working at any special tissue will find full details of almost all the means that have been hitherto tried to exhibit the modifications that the cell undergoes in its progress to maturity, whether passing through its life isolated and free or uniting with others to form membranes or glands or the fibres of muscle or nerve, or incrusting itself with cartilage or salts to form organs of support. It is here shown that each tissue demands special treatment and that some play of the imagination is required to combine the varying appearances presented by the action of different agents and to obtain a general idea of the structure or organ under examination.

The reader must not expect to find in the pages of this volume a treatise on histology. There is no connected account of the structure of any special organ. In the article "Haut" (Skin), for example, there is no such description as is contained in the works by Quain and Sharpey, by Gray, or in Schäfer's "Essentials of Histology," but he will find described the original method which Herxheimer employed to demonstrate the spiral fibres known by his name and the modifications suggested by Kromayer, Unna, Schutz, Mayer, and Delafield. He will find the different modes of showing the presence of eleidin and of pigment, the proper method of preparing nails and hairs for section, and the methods of exhibiting the characteristic features of favus, trichophytin, pityriasis, erythrasma, actinomycosis, blastomycosis, and cheloid acne. A long section covering 74 pages is devoted to the subject of injection; the various substances that have been used, as gelatin, gum, albumin, wax, tallow, asphalte, resin, paint, fusible metal, alcohol, and glycerine, are all given with the colouring agents which demonstrate the complexity and enhance the beauty of the preparation or, as in the case of the liver, aid in enabling the distribution of the vessels to be understood. Numerous forms of pumps and syringes are depicted and a section is devoted to physiological injection.

There is an excellent article covering 50 pages, entitled "Embryologische Technik," written by Herr Ballowitz of Greifswald. This gives full details of all necessary proceedings for the study of embryology, including artificial fertilisation, the method of obtaining and observing the living specimen, the preparation of ova and embryos, the processes of fixing and hardening these exceedingly delicate objects, of staining and imbedding them, of cutting and mounting sections, and of the reconstruction of embryos on the completion of serial sections, with various experimental and operative methods. Herr Ballowitz dwells on the importance of rapid removal of the developing ovum from the body of the parent. It has been found that even in reptiles the young embryo rapidly breaks down, so that Dr. Yoeltzkow found it necessary in his researches on the development of the crocodile in Madagascar to have the animals chained and dragged up to his house where he could open them and at once transfer the ova to the fluid used to preserve them. In order to obtain the ova in different stages of development a small opening was made in the abdomen and a string of the ova was extracted with the hand, all having arrived at the same stage of development. The wound was then aseptically closed and after two days was reopened and another batch of eggs was removed. The rules for the application of the various fixing agents, such as osmic acid, chromic acid, corrosive sublimate, picric acid, nitric and acetic acids, platinum chloride, alcohol, and formol are then given, with the advantages and disadvantages attending the use of each.

Again, should a young microscopist desire to obtain some information of Golgi's method of staining, he has only to

turn to the article under that heading, written by Kallius, and he will find it described as the treatment of organs and tissues with potassium bichromate for a variable length of time according to the effect required to be produced, after which the sections are placed in solutions of nitrate of silver of definite strength or in solutions of mercury bichloride, when a finely granular precipitate occurs which is composed of chrom-silver or chrom-sublimate, enabling certain elements of the tissues, and essentially the cells, when the preparation is properly cleared, to be distinguished from others. It is pointed out that Golgi's method is best adapted for the investigation of embryonic structures. The details of the process are then given, as, for example, the strength of the solutions to be used, the duration of exposure of the tissues to the action of such solutions, and the temperature at which they should be kept. The advantages of the method are shown to be that it is very generally applicable, affording, when the successive steps are properly carried out, beautifully clear objects, whilst it has the further advantage that thick sections are more instructive than excessively thin ones. The rest of the article, which extends over no less than 34 pages, is occupied with the numerous modifications that have been suggested by Cox, Sala, Hoyer, Ramon y Cajal, Obreggia, Pal, Greppin, Kallius, and many others, some being especially adapted for particular tissues, as, for instance the nervous system, the muscles, and the cornea. Finally, there is an excellent bibliography.

The work is extremely carefully edited and when completed should be on every laboratory table, for it is convenient to have the data here given at hand and much trouble and disappointment will be saved by a reference to its pages.

The English Poor-laws: their History, Principles, and Administration. By SOPHIA LONSDALE, Poor-law Guardian, Lichfield Union. Third edition, revised and enlarged. Westminster: King and Son. 1902. Pp. viii.–89. Price 1*s.* net.

EVERY medical man, and indeed every ratepayer, ought to know something about the Poor-law. At the present time, especially when there are a number of able-bodied unemployed men in the East-end of London, it is most desirable that so pressing a question as their relief should be considered in the light of knowledge previously acquired. There is great danger that the money of ratepayers, and of the charitable public, may be used in a manner which is not only useless but absolutely mischievous.

Miss Sophia Lonsdale, who has had the experience afforded by the actual study of the Poor-law in its practical working, has written a little book which gives in small compass a very large amount of useful information. Three lectures which were originally delivered at the University Settlement for Women at Southwark have been revised, corrected, and brought up to date, and in their present form they will give to any intelligent reader a clear conception of the nature of the Poor-laws and of the way in which, and by whom, they are administered. Those who have not the leisure or wish to read the monumental work of the late Sir George Nicholls[1] will be able to get from Miss Lonsdale's book in a couple of hours a general and fairly correct outline of the causes which led to the making of the laws and a general knowledge of "legal poverty" in England from the time of Elizabeth.

The most useful part of the work is contained in the third chapter where a very clear account is given of the actual everyday working of Poor-law relief. There is a description of the workhouse with its officers, the master, the chaplain, the medical officer, and the porter (who "is supposed to prevent the entrance of objectionable things ..... into the workhouse"). The various systems adopted for the education of pauper children are enumerated and briefly described. The peculiarities of vagrants are touched upon in sufficient detail, and evidence is brought forward to show that the shelters and refuges which have lately been provided by well-meaning people in such profusion are by no means an unmixed blessing. Indeed, it is said that not a few of these "moral elevators" are a disgrace to civilisation and in the case of many "the worst of our casual wards is a paradise in comparison to them." There are some valuable suggestions as to the best method of helping men who are out of work and it is pointed out that in any scheme which is to have a chance of success it must be recognised that "the unemployed are not all exactly alike." A thrifty man of good character may be temporarily out of work. Every effort should be made to keep such a man off the rates. On the other hand, the idle and vicious are best treated in the workhouse or by reforming agencies. It has been proved over and over again that indiscriminate outdoor relief imposes upon the ratepayers a burden too heavy for them to bear and tends to increase rather than to diminish the state of things which it is designed to remedy. Examples bearing on these and on other points are very simply and clearly given by Miss Lonsdale, who in most, if not in all, cases mentions the sources of her information.

The book might, it is true, be improved by further revision, but taken as a whole it is an extremely good piece of work written in great part from personal knowledge by a woman of clear insight, of acute observation, and of high intelligence. It is entirely free from foolish and hysterical exaggeration and would serve as a good literary model for His Majesty's Women Inspectors of Factories.

[1] A History of the English Poor-law in Connexion with the State of the Country and the Condition of the People. By Sir George Nicholls, K.C.B., late Poor-law Commissioner and Secretary to the Poor-law Board. Murray, 1854.

Text-book of Electro-Chemistry. By SVANTE ARRHENIUS, Professor at the University of Stockholm. Translated by JOHN MCCRAE, Ph.D. London: Longmans, Green, and Co. 1902. Pp. 344. Price 9*s.* 6*d.*

ELECTRO-CHEMISTRY is one of those branches of chemical science which has undergone immense development during the last 20 years and to Professor Arrhenius much of this progress is due. The effect of the electric current upon a liquid containing a metallic salt in solution was, of course, observed many years ago, the phenomenon being called "electrolysis." Faraday may be said to be the founder of electro-chemistry by his classic researches on the electrolytic deposition of metals, he having succeeded in establishing certain laws in regard to the phenomenon. But the phenomenon of electrolysis has gone a step further than merely illustrating the separation of metals from solutions of metallic salts; it has thrown light not merely on the nature of solution but, *a priori*, on the constitution of matter. Professor Arrhenius is perhaps the best living exponent of the marvellous development which we have indicated and with him should be mentioned Van't Hoff and Ostwald.

The work before us is founded upon a series of lectures delivered by Professor Arrhenius at the University of Stockholm in 1897. The English translation, which is based on the German edition, has been admirably done by Dr. McCrae. The translation into German of the original Swedish edition was made by Dr. H. Euler and in that edition many valuable references to the literature of the subject up to 1901 have been added. In the same way Dr. McCrae has made the English edition very valuable by appending a list of references to the recent literature on the subject. We find that the context contains references to recent work undertaken in this country such as that by Messrs. Heycock and Neville on the solutions of metals in each other. The various sections of

the subject are dealt with in a lucid manner and notably so in the chapter in which the application of electrolysis to the separation and estimation of metals is described. Rules are laid down for the direction of the analyst who decides to adopt this convenient method of estimation. Incidentally, it may be pointed out that the quantity of a salt in a solution may be determined by measuring its conductivity, and, further, the method can be applied to the estimation of two given salts in the solution. "At high dilution all salts when applied in equivalent quantity conduct almost equally well." It is obvious from this fact that it is possible to find the weight equivalents of salts present, for instance, in potable water by determining the resistance. The methods of electro-analysis might be employed with advantage in cases of metallic poisoning. Thus copper, mercury, lead, arsenic, antimony, tin, and zinc could be recovered directly in the metallic state from the contents of the stomach. The book deals with many other branches of the subject, as for example, the theory of accumulators and the utilisation of heat developed by the electric current, as in the manufacture of carbide of calcium, carborundum, and aluminium, and in other processes in which electrical appliances are employed. A book of this kind written in the English language has long been wanted, and those who wish to gain an insight into the nature of electro-chemical action and its applications have now the advantage of being able to consult a work by one of the first authorities on the subject.

LIBRARY TABLE.

Aids to Gynæcology. By ALFRED S. GUBB, M.D. Paris, M.R.C.S. Eng. London: Baillière, Tindall, and Cox. 1903. Pp. 136. Price 2*s.* 6*d.*—This little book, which is one of "The Student's Aids Series," has, we see, reached its fourth edition. It does not pretend to be more than an "epitome of the signs, symptoms, and treatment of the diseases peculiar to women," to quote the words of the author. As such it will be found useful to the student and to the young practitioner, but for the former of course its use must be supplemented by some good text-book.

Aids to Forensic Medicine and Toxicology. By WILLIAM MURRELL, M.D., F.R.C.P. Lond. Sixth edition. London: Baillière, Tindall, and Cox. 1903. Pp. 110. Price 2*s.* 6*d.*—This is another of "The Student's Aids Series." It is clearly written and if used as the author in his preface says that it should be used will be found to be of value. We are glad to see that Dr. Murrell calls attention to the fact that all judges are bound to administer the Scottish form of oath without question if the witness so desires it.

Herbert Fry's Royal Guide to the London Charities. Edited by JOHN LANE. London: Chatto and Windus. 1903. Pp. iii.-294. Price 1*s.* 6*d.*—This valuable work becomes larger every year. It might with advantage be reduced by eliminating details of certain militant "religious" associations which can hardly be described as charities. But the inclusion of these is only a small blemish on an otherwise excellent compilation.

A Doctor's Thoughts. By CLEMENT B. GUNN, M.D. Edin. Selkirk: James Lewis. 1902. Pp. 100.—Dr. Gunn, like "Weelum McLure," is a Scots country practitioner. His "thoughts" are embodied in a collection of sonnets of which most show a true poetic afflatus. To those who appreciate the beauty of nature and the romance of religion this little book will afford much pleasure.

Carmina Medici. By WILLIAM FINDLAY, M.D. Paisley: Alexander Gardner. 1902. Pp. 166. Price 3*s.* 6*d.* net.—Dr. Findlay's muse plays on a rougher-toned pipe than that of Dr. Gunn. But in this world action is more important for most of us than is contemplation and such poems as "The Hypochondriac" will go home to every practitioner's heart. Should, however, anyone, like Barnes Newcome, be drawn towards the domestic affections, let him read "A Spring Monody," and if he can do so without a lump in his throat we shall be surprised. The "Kirkyard Eclogue" on Glasgow Royal Infirmary is admirable reading and we are glad to see eulogies of three of our favourite writers—Henry Vaughan, Sir Thomas Browne, and Dr. John Brown.

A Handbook of the Open-air Treatment. By Dr. CHARLES REINHARDT and Dr. DAVID THOMSON. London: John Bale, Sons, and Danielsson, Limited. 1902. Pp. 176.—This is the second edition of a useful book the first edition of which was reviewed in THE LANCET of March 2nd, 1901, p. 637. To this edition Dr. David Thomson has added a short *résumé* of the history and results of the open-air treatment. The list of sanatoriums has been brought up to date and at the beginning of the book sundry passages of interest to a patient suffering from pulmonary tuberculosis have been added.

Glossaire Médical. By Dr. L. LANDOUZY, Professor of the Medical Clinic at the Paris Faculty of Medicine, Laënnec Hospital, and Dr. F. JAYLE, Chief of the Gynæcological Clinic of the Paris Faculty of Medicine, Broca Hospital. With five Maps and 426 Illustrations. Paris: C. Naud. 1902. Pp. 663. Price, paper covers, 16 francs; cardboard covers, 18 francs.—This is a dictionary of medical terms and expressions. The authors urge that constant progress accomplished and numerous discoveries made in medicine and surgery result in the employment of so many new terms that a book of reference is much needed. Again the custom of calling an instrument or an operation by the name of the practitioner who first resorted to such instrument or operation does not help to indicate what the meaning of the term may be. All this has given rise to a complicated medical language which no practitioner can be expected to know thoroughly. Again, there is a difference between the words that might be employed and those that are usually utilised. The glossary before us seeks to give what is practically useful; not so much all possible nomenclature or all the old terms, but rather all the modern words and expressions which are actually in vogue. It is a collection of new words, of anatomical expressions, of diseases that bear the personal names of their discoverers, of recent medicaments, of the principal mineral waters, sanatoriums, &c. To these words brief bibliographical indications are added and numerous small but well-executed illustrations render the meaning more accurately than would be possible by mere verbal descriptions. Deformities and monstrosities constitute a large portion of these pictures and as many of them are taken from life they are very interesting. Then the maps give the health resorts, the sanatoriums, agricultural colonies for the convalescent, and the like. Altogether the work may be regarded as a very complete compendium and, considering that such technical works are generally very expensive, the price in this case may be described as moderate.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S.; W. F. R. WELDON, F.R.S.; and SYDNEY J. HICKSON, F.R.S. With Lithographic Plates and Engravings on Wood. London: J. & A. Churchill. 8vo. New series, No. 183. Vol. XLVI. Part III. December, 1902. Pp. 108. Price 10*s.*—This part contains the following articles: 1. On a Cestode from Cestracion, by W. A. Haswell, F.R.S. The cestode here described is found in considerable numbers in the large intestine of that ancient fish, the Port Jackson shark. In it, as was noticed by von Beneden, the proglottides are set free from the posterior end of the strobila long before maturity

has been reached and only attain a stage corresponding to that of the ripe proglottides of a tænia after having led an independent existence for a considerable time. The strobila is actively locomotive. Mr. Haswell refers this cestode to the genus Phyllobothrium. 2. The Development of Lepidosiren Paradoxa, by J. Graham Kerr, Regius professor of zoology in the University of Glasgow. This is the third instalment of the papers on this subject by Professor Kerr and is devoted to the development of the skin and its derivatives. The changes which the chromatophores undergo under alternate exposure to light and darkness are well described and well rendered in the plates illustrating the paper. Separate sections are devoted to the stomodæum, the teeth, the hypophysis, and the central nervous system. In the account of the brain of the adult lepidosiren it is shown that it closely resembles that of protopterus. The cerebral hemispheres arise at two separate bulgings of the wall of the thalamencephalon; the pineal organ is simple without any trace of a separation of a part of it to form a "parietal organ." The rudiments of the eyes, nose, and ears are at first solid, the cavity of the optic vesicle arising secondarily; in the histogenesis of the visual layer of the retina the development of the rods is preceded by the formation of the oil globules. 3. The Metamorphosis of Corystes Cassivelaunus (Pennant), by Robert Gurney, B.A. Oxon. 4. Artificial Parthenogenesis and Fertilisation, a review by Thomas H. Bryce.

Analytical Records
FROM
THE LANCET LABORATORY.

BROMOCOLL.

(CHARLES ZIMMERMANN AND CO., 9 AND 10, ST. MARY-AT-HILL, LONDON, E.C.)

BROMOCOLL is an organic compound containing bromine which it is proposed to substitute for the ordinary alkaline bromides. It is a yellowish-brown powder insoluble in water or acid fluids, but slowly soluble in alkaline fluids. Bromocoll, therefore, is probably absorbed in the intestinal tract. It is stated that it gives the well-known sedative effects of the alkaline bromides, while it is without injurious action, and its administration in the place of bromides in epilepsy in comparatively large doses is suggested. Bromocoll used in the form of an ointment is said to be efficient in the treatment of irritable conditions of the skin as eczema and prurigo. Bromocoll would appear to be a definite chemical compound containing tannin, gelatin, and bromine, and is prepared by acting on gelatin with brominated tannin. The drug is stated by several German physicians of repute to give encouraging results in sleeplessness, epilepsy, and other nervous disorders.

HUNTER BALTIMORE WHISKY.

(W. LANAHAN AND SON, BALTIMORE; A. A. BAKER AND CO., 30, MINCING-LANE, LONDON, E.C.)

The following analysis of this rye spirit is interesting as showing relatively small amounts of secondary products of fermentation such as aldehyde, furfural, higher alcohols, and ethers. The results were as follows: Extractives, 0·40 per cent.; mineral matter, 0·01 per cent.; alcohol, by weight 35·50 per cent., by volume 49·40 per cent., equal to proof spirit 74·30 per cent. The secondary products given in grammes per hectolitre were as follows: aldehyde, 3·50; furfural, 1·00; higher alcohols, 30·00; ethers reckoned as ethyl acetate, 34·30. The spirit is dark brown in colour and is intended to be taken rather as a liqueur than diluted with plain or aerated water. It possesses the peculiar flavour and smell of rye spirit which in certain countries is much esteemed. Compared with malt whisky or genuine brandy the amount of higher alcohols, furfural, aldehyde, and ethers is small. From this point of view the liqueur is a very pure spirit—that is to say, it approaches the composition of diluted ethyl alcohol as do most grain-derived spirits in general. We may add that the alcoholic strength is somewhat low, and, indeed, half a degree lower than the limit of dilution of whisky permitted in this country.

KARNOID PREPARATIONS.

(KARNOID LIMITED, 6 AND 7, STONECUTTER-STREET, LUDGATE-CIRCUS, LONDON, E.C.)

We have already drawn attention to the excellent results obtained by that method of drying in the cold which is adopted in the preparation of Karnoid foods. These products recently have been considerably improved as regards flavour. An analysis of karnoid beef showed that it contained 55 per cent. of proteid and no less than 12·16 per cent. of albumin was extracted by cold water. Chicken karnoid yielded in a similar way 13·64 per cent. of albumin. The clear cold water solution of karnoid turns into a sort of jelly on heating owing to the coagulation of the myosin albumin. Karnoid meat preparations are excellent foods and admirably adapted for the requirements of the invalid. They afford a ready means of preparing a really nutritious meat tea. We have also examined a preparation of oysters obtained by the same dry cold process. Here, again, we found the albumin of the oyster in a soluble condition, the total amount of matter extracted by cold water being 50 per cent. and the amount of coagulable albumins 13 per cent. The dried oyster flesh was in a powdered form resembling white pepper in appearance. This method of concentrating and comminuting fleshy foods is a great advance on other methods, since in the product are retained the vitalising principles of the original meats intact.

IMPERIAL STOUT.

(A. LE COQ AND CO., 25, ORANGE-STREET, LONDON, S.E.)

This stout is described as "extra double" and our analysis confirms this description, assuming that this expression refers to stout showing a very high percentage of malt extractives. The following was our analysis: Malt extractives, 9·21 per cent. (containing over 8 per cent. of proteids); mineral matter, 0·45 per cent.; alcohol, by weight 9·36 per cent., by volume 11·61 per cent., equal to proof spirit 20·35 per cent. The sample we examined was in good sound condition and ripe and possessed a rich malty flavour. It is free from excessive acidity and the carbonic acid gas is the product of the fermentation of the liquor itself and is not artificially forced in. We have already expressed the opinion that artificially carbonated malt liquors are dietetically inferior to those which effervesce with their own natural gas of fermentation. This stout, it is stated, has been shipped hitherto exclusively to Russia. Stout has a reputation of being a very nourishing malt liquor and in this regard this specimen must be assigned a high position, since its analysis shows a very considerable proportion of nutritives.

(1) INVALID FOOD; AND (2) TELMA COCOA.

(THE TELMA SYNDICATE, 57, FENCHURCH-STREET, LONDON, E.C.)

(1) The invalid food is stated to be prepared from malted lentils and malted wheat, a fact which is easily revealed by microscopic examination. The food contains a large amount of soluble carbohydrates owing to the malted process and the digestibility is thereby increased. Our analysis gave the following results: Moisture, 5·08 per cent.; mineral matter, 1·90 per cent.; proteids, 17·24 per cent.; carbohydrates and fat, 75·78 per cent. (2) Telma cocoa is a mixture of dextrinised cocoa with the foregoing food. There is thus a dietetic gain, the cocoa adding some nitrogenous principles as well as stimulating substances. Our analysis of the cocoa gave the following results: Moisture, 5·79 per cent.; mineral matter, 1·96 per cent.; proteid, 20·72 per cent.; carbohydrates and fat, 71·53 per cent. These foods present the

general advantages of malted food and the selection of the constituents has been judiciously made. The pulse foods, for example, are much better digested when malted and mixed with wheaten flour.

HUBBLE'S BEEF BISCUITS (ST. IGO).

(ALFRED HUBBLE, 85, NEW CHURCH-ROAD, CAMBERWELL, LONDON, S.E.)

Microscopical examination of these biscuits reveals the presence of a considerable amount of beef tissue and, in view of this result, it is not surprising that a high proportion of proteid was found. Our analysis gave the following results: Moisture, 7·82 per cent.; mineral matter, 3·97 per cent.; proteids, 35·84 per cent. The balance may be accepted as consisting of starch and fat. The biscuits have a pleasant meaty flavour and are "short" and crisp. They serve very well as a source of temporary nourishment in emergency. As the analysis shows, they contain a high proportion of tissue-forming substance.

HÆMATOGEN (HOMMEL'S).

(NICOLAY AND CO., 36 AND 36A, ST. ANDREW'S-HILL, DOCTORS' COMMONS, LONDON, E.C.)

We have already indicated in these columns the composition of Hommel's hæmatogen. The preparation contains the normal salts of blood plasma and is rich in unaltered albumin as is shown by the fact of the preparation turning nearly solid on heating. Besides these important points hæmatogen also, of course, contains iron in organic form and partly on this account Hommel's hæmatogen has proved valuable in anæmic conditions. The preparation has recently been improved chiefly in regard to flavour. Formerly it had a curious salty flavour which was distasteful to some persons. This objection can no longer obtain.

VARIOUS CHOCOLATES.

(SÉCHAUD & FILS, MONTREUX, SWITZERLAND; LONDON OFFICES, PENINSULAR HOUSE, MONUMENT-STREET, LONDON, E.C.)

We have received some novel specimens of chocolate from the above firm, one containing chopped nut, another coffee, and another milk. The analysis of the milk chocolate was as follows: Moisture, 2·5 per cent.; ash, 2·25 per cent; fat, 27·90 per cent.; and proteid, 7·30 per cent. The preparations are not only pleasant to the taste but they are also nutritive. The flavour of those chocolates containing coffee is decidedly novel.

CASUMEN ARROWROOT.

(PRIDEAUX'S PURE CASEIN AND LIFE FOOD CO., MOTCOMBE, DORSET.)

The addition of pure milk proteid to arrowroot is a correct physiological proceeding since arrowroot is one of the most easily absorbed starches known, while casumen is a soluble proteid. Moreover, arrowroot contains less than 1 per cent. of proteid, and alone therefore possesses no tissue-forming value, while casumen contains over 90 per cent. of proteid. Our analysis of casumen arrowroot was as follows: Moisture, 14·15 per cent.; mineral matter, 1·05 per cent.; fat, 1·20 per cent.; proteid, 28·20 per cent.; and arrowroot starch, 55·40 per cent. According to this analysis casumen arrowroot consists of arrowroot plus 30 per cent. of casumen. This 30 per cent. represents the gain obtained as regards nourishing value by mixing casumen with the arrowroot. It forms an excellent food for invalids and infants and for those possessing weak digestive faculty.

JEYES' SPECIAL FLUID.

(JEYES' SANITARY COMPOUNDS CO., LIMITED, 64, CANNON-STREET, LONDON, E.C.)

We have at various times described the series of disinfectants prepared by Jeyes' Sanitary Compounds Co., the original preparation being known as creolin, a fluid coal-tar compound which forms a uniform emulsion with water. This company has recently prepared a coal-tar disinfectant of a similar nature but with increased germicidal power which is known as Jeyes' special fluid. According to the bacteriological experiments made by Dr. E. Klein, this new preparation is decidedly destructive to certain pathogenic organisms. The experiments related to the germicidal action of the fluid on staphylococcus pyogenes aureus in various dilutions and after varying periods of exposure of the micro-organisms to the fluid. In another series the germicidal power of the special fluid in various dilutions on tuberculous sputum was tested, the time of action being 24 hours, the *materies morbi* having been applied to the surface of wood. As is well known, the resisting power of the staphylococcus is an excellent guide as to the power of a given disinfectant. The results showed that even when the special fluid was diluted to the extent of 1 in 400 it proved a complete disinfectant for this specific organism in an exposure of five minutes. In the second series of experiments the sputum of a person affected with pulmonary tuberculosis was tried. There was no doubt of the presence of an abundance of the tubercle bacilli. The result of inoculation experiments on guinea-pigs ultimately showed that the virulent tubercle bacilli deposited and dried on wood became completely disinfected by solutions of the special fluid up to 1 in 800 after an exposure of 24 hours. According to these results the preparation is obviously a trustworthy germicide.

New Inventions.

THE CARRON PATENT HYGIENIC INDUCTION CONDENSING GAS STOVE.

THE heating efficiency of a gas stove depends of course upon the extent to which the total possible heat of combustion is realised. The greatest economy in this direction would be attained by allowing gas to burn in the open room and making no provision for carrying away the escaping products of combustion. There are, however, obvious objections to this method apart altogether from the fact that the combustion may be not completely satisfactory. If the products of combustion of coal gas were only carbonic acid and water they would be no more objectionable than those arising from human respiration. Under such conditions, and all things being equal, the gas stove would sin less against the purity of the air than a human being. However perfect the combustion of coal gas may be there are always sulphur compounds to be reckoned with and attempts have been made from time to time to free the products of combustion from these sulphur oxidation products. To some extent such purification is distinctly effected in what is known as the "condensing gas stove" of which that of the Carron Company is a decidedly improved type, giving a high heating efficiency on a very small consumption of gas and yielding products of combustion which in the main are condensed; the liquid so formed containing much of the original sulphur of the gas in the form of combined sulphuric acid. Carbonic acid gas is also in some measure condensed, while in a well-designed stove practically all the steam is reduced to water. The fact that the products of combustion are in this way largely condensed is not the only favourable feature of the stove, for in the act of condensation their heat is given up and made available for the purpose of warming. On this account the Carron condensing stove shows a very high heating efficiency and *a priori* the consumption of gas is small. The construction of the stove is very simple. Over the gas flame which may be of the argand or Bunsen type with a chimney, or over a red hot gas fire, an exit chamber is placed through which the gases pass and are expanded by the heat. The gases then travel to the right and to the left to chambers at each side of the stove. Condensation occurs and vapour is produced. The top section of the stove is quite hot while the lower section is cold. The hottest point, and therefore the greatest expansion, occurs roughly about half way down the condensing chamber. Between the condensing chamber and the burner or fire on both sides are two tubes which carry off the vapour which is led to them by the hot gases formed at the

top of the chamber immediately over the burner or fire. The result of this arrangement is that a maximum amount of condensed liquid is obtained and according to our analysis this liquid contains a very appreciable amount of sulphur in the form of combined sulphuric acid. In one experiment we obtained 13 ounces of fluid after the stove had been working six hours, the total gas consumed being 48 cubic feet—that is to say, approximately one ounce of fluid is obtained from three cubic feet of gas consumed. On analysis this fluid was found to contain seven grains per gallon of sulphuric acid (SO_3) which is equal to about three grains of sulphur per gallon. There is thus an important amount of sulphur washed out of the products of combustion and as sulphur compounds are the most objectionable products of the combustion of coal gas this result is decidedly a favourable feature of the stove. As to the heating efficiency of the stove this need hardly be determined by experiment since all the possible heat of the gas consumed is entirely utilised for the purpose of heating a room. The maximum reading of a thermometer placed one foot in front of the stove was 80° F. The stove we tested consumed only eight cubic feet of gas per hour and on a very cold day it sufficed to raise the temperature of a room of 1500 cubic feet capacity from 55° F. to 61° F. in three hours. Considering that only eight feet per hour were consumed and that the room was a difficult one to keep warm on account of spacious windows with a north aspect, this result is satisfactory. The temperature of the room was subsequently maintained at 62° F. for four hours, although the outside temperature fell to 48° F. As might be expected, the amount of carbonic acid gas in the air increased, the actual increase after six hours being from 3·5 parts per 10,000 to 10 parts per 10,000. No attempt, however, at ventilation was made and the increase of carbonic acid gas under the same conditions, but with people living in the room, was in much the same progression. Even after several hours' working there is no evidence of the presence of those offensively smelling gases which point to defects in the working condition of the stove and the formation of which has served to prejudice so much the use of coal gas for heating purposes. The stove gives an efficient and healthy heat, the warmed air being quite free from smell or "stuffy" character and it is not "scorched." The Carron Company of Glasgow and elsewhere are the makers and the London agency is at 20, Victoria-street, Westminster, S.W., where various types may be seen in working order.

A NEW FORM OF NASAL TRUSS.

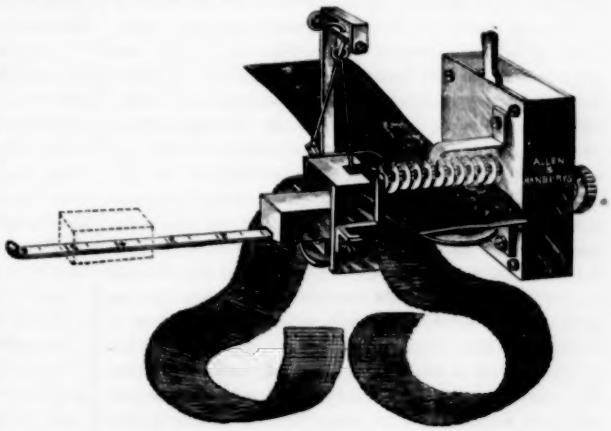
HERETOFORE the difficulty has been to prevent the forehead plate of a nasal truss from slipping from side to side and upwards over the forehead. The present truss is designed to obviate this difficulty by making the lower border of the forehead plate follow the contour of the root

of the nose and contiguous orbital margins. A rounded notch A corresponding with the root of the nose is cut in the plate and the margins of the lower part of the plate forming the sides of the notch are bent backwards in a blunt curve, B B, to almost a right angle to the rest of the plate. The notch therefore embraces the root of the nose, while the turned-back portions of the margins of the plates catch under the orbital ridges at the internal angular processes of the orbits. This prevents the truss from being displaced upwards, while the notch prevents any movement from side to side. The truss is provided with the usual straps and head-band, and to the plate are fixed the usual arms for making pressure upon, and fixing, the nasal bones or cartilages. It is made by Messrs. Arnold and Sons, West Smithfield, London, E.C.

Harley-street, W. W. J. WALSHAM, F.R.C.S. Eng., &c.

IMPROVED RICHARDSON'S SPHYGMOGRAPH.

HAVING found that the Richardson's sphygmograph was so constructed that it was not possible to apply a pressure of more than four ounces, and that a pressure of one ounce



was not always to be depended upon, I have suggested that certain alterations shall be carried out by Messrs. Allen and Hanburys, Limited, of 48, Wigmore-street, London, W., which will remedy these defects. The steel bridge has been raised to permit the weight being pushed home beneath it where it does not interfere with the movement of the steelyard. The figures indicating the pressure are read off on the steelyard on the distal side of the weight and not on the proximal as is customary. A pressure of from one to six ounces can be easily seen and registered. The pressure indicated by each figure has been separately tested by the makers and found accurate.

J. FLETCHER LITTLE, M.B. Cantab., M.R.C.P. Lond.

Harley-street, W.

ROYAL INSTITUTION.—The Friday evening discourse at the Royal Institution on Jan. 16th was delivered by Professor James Dewar, the subject being Low Temperature Investigation. One of the researches described was concerned with the formation of ice under a pressure of several thousand atmospheres. Among the various experiments he showed how a vacuum tube could be progressively exhausted so as to exhibit in a brief period all the phases of electrical discharge in rarefied air up to the production of Roentgen rays, the exhaustion being produced by cooling the tube in one spot with a little sponge soaked in liquid hydrogen.

THE PLYMOUTH ROYAL EYE INFIRMARY.—The annual meeting of the subscribers of this institution was held on Jan. 14th under the presidency of the mayor of Plymouth. The medical report showed that during 1902 there had been 2130 out-patients treated, 261 in-patients admitted, and 309 operations performed. The financial statement showed that an unfavourable balance of £1076 remained, including £1000 standing against the building fund of the new infirmary. The mayor made a strong appeal to clear off the debt on the building and contributed 10 guineas to start a special fund for that purpose.

THE LANCET.

LONDON: SATURDAY, JANUARY 24, 1903.

The Deputation of the Imperial Vaccination League.

THE members of the deputation from the Imperial Vaccination League which waited upon Mr. LONG at the Local Government Board on Jan. 14th must have been highly gratified by the cordial sympathy with which they were met; indeed, we can recall no other instance in which the programme of a deputation has been so unconditionally accepted. An account of the proceedings will be found at p. 260 of our present issue. It is a matter of satisfaction to THE LANCET to find that the President of the Local Government Board was able to agree with the views set forth by us in our leading article of Jan. 10th, and we were pleased to see that Mr. LONG urged upon the deputation the necessity of the continuance of its crusade if it wished its proposals to be carried to, and through, the House of Commons. Mr. LONG was, however, careful to guard his position as a Minister of His Majesty's Government and member of the Cabinet. He told the deputation that he had not yet consulted his colleagues and that even had he done so he would have deemed it undesirable, politically speaking, to reveal his plan of campaign for the edification of the opponents of vaccination. In our leading article, to which Mr. LONG referred in his reply to the deputation, we urged upon the Imperial Vaccination League the desirability of approaching some of the leaders of the Opposition in order that when the Government proposals are made known they may not become the subject of party polemics, and although the President of the Local Government Board seems to have some misgivings as to the practicability of a non-contentious measure, we are still of opinion that the effort should be made to confer with the leaders of the Opposition. The support of Sir MICHAEL FOSTER, Sir WALTER FOSTER, and Dr. FARQUHARSON ought to be secured.

The question arises whether Mr. LONG's influence in the Cabinet will suffice to convince his colleagues of the wisdom of his convictions. Although the President of the Local Government Board presides over a department which exercises the predominant influence in domestic legislation and which is responsible for the public health of the nation, this department, unfortunately, does not occupy a very high position in the eyes of the Government. As Sir MICHAEL FOSTER remarks in the current number of the *Nineteenth Century*, it has been accorded by the State an inferior status in "the hierarchy of Government Departments." Until the President of the Local Government Board receives the rank and pay of a Secretary of State it can hardly be expected that the county and district councils and boards of guardians will take that position in public affairs which the importance of their work demands. This reference to local authorities brings us back to the question as to whether Mr. LONG's decision to transfer the administration of the Vaccination Acts to county councils and county boroughs is the best possible one. Since the deputation took place several suggestions have been made to us upon the subject, and it is clear from the number and sincerity of these proposals that there is some want of unanimity upon the matter among local authorities and their officers as to what is the best scheme. It is suggested by some that the administration should be left in the hands of the guardians but that county councils should be given a supervising power, and that, should the necessity arise, such county councils should be able to supersede the guardians in administration. One of the arguments used in support of this view is that the vaccination officers, who are very frequently relieving officers, are already under the guardians and that a transference of administration to the county councils would place the unfortunate officials under two masters. There is, of course, something in this view, but it seems to us that the claim that vaccination should be a thing quite apart from the disabilities, real and imaginary, of the Poor-law is so strong that the difficulties of detail would have to be greater than we think them to be to justify us in foregoing an important advance in principle. As a matter of actual fact, the vaccination officers have now frequently three masters—i.e., the guardians, the Local Government Board, and the registrar-general—for vaccination officers are very frequently also registrars of births and deaths. If the county councils are brought into fresh relations with boards of guardians a step will be taken which may tend towards a far greater complication of local affairs than obtains at present. We think that the interests of the county councils in matters of sanitation should be deeper, and that vaccination, being a detail of public health administration, had better be put in their charge. We have already alluded to the advantages in this respect which they will possess under the Education Act.

Some of those who have placed their views before us strongly advocate the appointment of a departmental committee to consider the administrative problems involved, the idea being to make certain that the Government proposals, when framed, will constitute a strong measure founded on first-hand knowledge of the facts. We see the force of the suggestion, but are afraid that the step would mean the postponement of the difficulty. Even if the suggestion were acted upon at once the committee might take a considerable time to get into working order. The number of witnesses to be examined would in all probability prove to be great, and before the report could be prepared and presented the legislative crisis would have been passed and the present Vaccination Act would be extended for at least another year. A departmental committee might, we allow, smooth the passage of a Vaccination Bill, but we have some qualms in mentioning a departmental committee since this is such a very favourite device with Governments of all shades of opinion for shelving awkward questions. Certainly, if such a committee were appointed it would be necessary to be very

careful in drawing up the terms of reference. These terms should specifically state that the object of the inquiry was to determine the best means of efficiently *applying* vaccination and revaccination; the desirability, or the reverse, of revaccination should under no condition be the subject of discussion. But in our opinion the moment for legislation is opportune. We have a strong President of the Local Government Board supported, let us hope, by a strong Government. The appointment of a departmental committee means postponement and then it becomes difficult to prophesy what may be the calibre of the Government which may be called upon to deal with this question, and what may be the fighting power of the then President of the Local Government Board—for a successful President of the Local Government Board usually passes to better paid offices, when public health loses a man who, had he stayed, might have done admirable constructive work. While congratulating the Imperial Vaccination League and the Jenner Society upon the great success of their labours we must urge them, whether or not a departmental committee be appointed, to carry on the war. The whole difficulty is merely one of organisation, and vaccination has upon its side education, influence, and wealth. Let those who possess these advantages make use of them for the control of small-pox.

The Medical Examination of Lunatics in Workhouses.

THERE were 3425 insane persons admitted into the asylums of the county of London during 1901 the great majority of whom passed through the metropolitan workhouses in the process of being certified. In addition to these there was a large number of persons who, being admitted into workhouses as alleged lunatics, were, after 14 days' detention, discharged under the advice of the medical men engaged in their examination. The examination of all these persons and the choice of the medical men employed therein are matters, therefore, of very considerable importance, both public and professional. When a relieving officer or overseer of the parish removes a person alleged to be of unsound mind to the workhouse he forthwith lays information before a justice of the district who is bound under the statute to summon a medical man to his aid to examine and to report upon the mental condition of the alleged lunatic. The choice of the medical man who is summoned and also the amount of the fee which has to be paid to him by the guardians rest entirely with the magistrate. There is nothing in the statute to guide him in this matter, it being assumed that most of the justices will be enabled to find such guidance in common sense and reason as applied to the duties of their responsible office. It is therefore a matter for the gravest regret when complaints can be made upon good ground that the chief reason for the selection of the medical man is that he is the ordinary medical attendant or personal friend of the justice concerned. The majority of the metropolitan justices employ the medical officer of the workhouse, being apparently guided in their choice by the fact that the alleged lunatics are under his care and constant daily observation, whereas any outside practitioner can of necessity only make special and occasional visits to patients who are under the care of another medical man. It has been alleged in some quarters as a reason for not employing the medical officer of the workhouse that the latter might be induced to certify lunatics for the sake of the fee. But the fee is paid for the medical opinion and report, quite apart from the nature of that opinion, whether for or against the sanity of the patient, so that the fallaciousness of this stupid accusation is apparent. The Commissioners in Lunacy have expressed the eminently reasonable view that the proper person to certify as to the sanity or insanity of an alleged lunatic is the medical attendant of the patient for the time being, and in the case of inmates of a workhouse this is certainly the medical officer. If it could be shown that any individual practitioner had had, previously to being employed by the justice, special experience in lunacy this might be brought forward as a reason for his being called to the case by the justice. But it is alleged that sometimes the practitioner is employed merely because he happens to be a personal friend or the medical attendant of a justice, and where such relations between the justice and the examining medical man form the only reasons for the medical man's selection we have a grave abuse of authority. The medical officer of the workhouse is nearly always possessed of special experience not only of Poor-law lunacy but of the character and habits of the particular social class to which the patient belongs and the community ought not to be deprived of his valuable services upon the amiable impulse of a justice desiring to oblige a friend. In view of the complaints which we have received the matter should, we think, be brought to the notice of the Commissioners in Lunacy, or, in the event of the expression of their opinion not having sufficient weight with the justices, before the Lord Chancellor.

The Medical Officer of the Ballachulish Slate Quarries.

AS we have already stated in THE LANCET,[1] Lord KYLLACHY has given his decision in the action raised in the Outer House of the Court of Session by the Ballachulish Slate Quarries Company, Limited, against Dr. LACHLAN GRANT, whom the directors of the company sought to prevent from continuing to practise medicine in the district of Ballachulish. Dr. GRANT was under contract to attend the workmen of the company by virtue of an agreement made with the directors in which he bound himself to accept a month's notice to terminate his services and further to give up any other appointments which he might then hold in the neighbourhood and to discontinue all practice there. It was not, presumably, contemplated by Dr. GRANT when he made this agreement that he might be dismissed under it arbitrarily or without proof of any default on his part, and consequently when he found himself in receipt of a notice which he considered to be so given he refused to carry out the portion of his arrangement relating to practice in the district. Judgment has now been given against him and he

[1] THE LANCET, Jan 10th, 1903, p. 123.

has been held to be bound by the contract which he unquestionably made. It is possible, no doubt, that an appeal may lie and that points of law raised before Lord KYLLACHY may be argued again in a higher court. Whether this be so or not we do not propose to discuss these but to assume the present decision to be final, while we would point out to medical practitioners how undesirable it is in their own interests and in the interests of the public that they should bind themselves by rigid contracts of this kind without fully understanding their import and being prepared for all their possible consequences.

We have suggested what may have been in the mind of Dr. GRANT. He may have considered that the directors of the quarry company, in the interests of their workmen, desired to provide against the unpleasant contingency of their medical officer proving at some future date to be negligent or incompetent in the performance of his duties, and that they accordingly protected themselves by means of a prompt and easy method of getting rid of him. Confident in his own competence and integrity he, no doubt, felt no anxiety lest summary dismissal should at the same time deprive him of his practice at the quarry and of that which he was evidently likely to acquire in the district. Others would perhaps have thought as he did. Some, more prudent, would perhaps have demanded the insertion in their contract of an undertaking by the directors not to exercise their power to terminate the engagement except for causes which would not have been difficult to define. Such a demand might not have been acceded to, but the refusal in itself would have been a warning of what might be expected to occur, and such a warning could have been disregarded or not according to the choice of the medical man. We see no reason, however, why the candidate for such a post should not occupy as strong a position as those seeking to obtain his services. Men of ability are not to be had for the asking, taking into consideration the emoluments offered and the limited possibilities of future additions to them in a district such as that of the Ballachulish Slate Quarries. Whatever the conditions may be, however, which may influence the directors of a company employing workmen to dispense with the services of their medical officer they are likely to be such as directly concern the contracting parties only. The objectionable feature of an agreement which binds a medical man, as Dr. GRANT was bound, is that it indirectly affects a whole district by making the medical man who is perhaps most easily available for its inhabitants, if not the only practitioner within their reach, the servant of a body of traders who can retain him or get rid of him as they please but who have no interest in his presence or absence, or, indeed, in his existence, except in so far as it affects themselves. We have already pointed out[2] that Dr. GRANT has filled the post of Poor-law medical officer of the Ballachulish district. That the directors of a quarry company may properly have a voice in the choice of a medical officer for their men may be conceded—although in this instance the Ballachulish quarrymen entirely deny that their directors can claim any right whatever to interfere—but no one can hold that the directors of such a company ought to be able to appoint and summarily to dismiss the Poor-law medical officer of the locality in which they happen to carry on business.

We quoted in THE LANCET[3] upon a previous occasion a statement or manifesto of the directors which professed to assign as the cause of Dr. GRANT'S dismissal a defect in his contract. The contract appeared not to prevent him from taking work at a distant granite quarry, and we pointed out that the quarry said to be objected to was not in our opinion so far distant as to make this a valid excuse. We have also referred[4] to other circumstances which are said to be connected with the giving of the notice. These, we observe, are freely written and spoken of in the district apparently without any satisfactory reply being made to the very serious allegations put forward. The more recent developments of the dispute, however, show a state of affairs still to be deplored, while at the same time they confirm the position of those who maintain that the notice given to Dr. GRANT was not given for any good cause. In consequence of a resolution passed by the men and handed to the manager of the quarry the men have been "locked out" and deprived of their means of living. They had, however, before this addressed to the shareholders of the company, who are apparently only 27 in number, a statement of their case and appealed to them in the hope, as they expressed it, that the shareholders' sense of right and justice may guide them to make an effort to terminate an unrighteous and unmeaning persecution of a respected, upright, and honourable man. To such an appeal we can only add the very strong recommendation that the shareholders should not dismiss the question lightly, and that they should not give their support to their directors, or, indeed, to the men, without full investigation of all the points that have been raised. We would further remind them that although men are within their legal rights who claim the full advantage of a bargain made, legal rights may sometimes be foregone without disadvantage or discredit to those who exercise such forbearance. In this case Dr. GRANT and those who sympathise with him only ask for such consideration and forbearance as justice will be found to demand after full inquiry has been made.

We have no desire to be harsh in our judgment, but the impression left by a perusal of the whole of the materials available to us is one distinctly unfavourable to the directors of the Ballachulish Slate Quarries Company upon the broad question as to whether they have carried out their portion of the agreement between themselves and Dr. GRANT in the spirit in which such agreements should be carried out by all the parties to them. With regard to the agreement itself Dr. GRANT may be legally bound by it, but its terms are not such as, in our opinion, should be offered to members of the medical profession or accepted by them without their full purport being made clear upon the face of the document.

Baby-Farming.

SEVERAL recent criminal trials have drawn attention to the danger with which infant life is threatened by the practice of "baby-farming," but none since the case of the

[2] THE LANCET, August 2nd, 1902, p. 300.

[3] THE LANCET, August 16th, 1902, p. 449.
[4] THE LANCET, Nov. 1st, 1902, p. 1229.

infamous Mrs. DYER, who was hanged in 1896 after a series of cold-blooded murders, has thrown a more lurid light upon the details of this revolting traffic than the trial of the two women SACH and WALTERS, which was concluded at the Old Bailey on Jan. 16th by the passing of the death sentence upon both the accused. It was shown for the prosecution in the course of the case that the guilty women worked in connexion with one another, being in constant communication and sharing the profits of their transactions, while the whole of the circumstances taken together proved beyond any reasonable doubt that each knew and connived at the acts of the other. SACH kept a "maternity home," including in her advertisement of it the statement "baby can remain." Women—in every case, probably, women to whom motherhood meant ruin—came and were delivered at SACH'S "home." Where their natural feelings for their offspring made them hesitate to dispose of the infants SACH allayed any scruples that they might feel by specious assertions of her power to get the infants adopted into good homes in return for small payments. Immediately after birth the children were taken from their mothers and handed to WALTERS who removed them to her own lodgings. In the particular case of the murder upon which conviction has followed a few drops of chlorodyne deprived the newly born infant of life and the disposal of the body alone remained to be considered. Probably the method with which we are familiar from reading about it frequently in newspapers was the one which WALTERS intended to employ. She meant to leave the infant's body in a parcel at a railway station or in a railway carriage; but she had already excited the suspicion of a police officer who resided in the same house, with the result that she was arrested at South Kensington station with the corpse in her possession. The arrest of WALTERS was immediately followed by that of SACH and the statements of the two women were such as to render it lawful for the prosecution to give evidence of other similar cases at the trial on an indictment dealing with the death of one child only, and the circumstance secured the just conviction of both the miserable wretches. When evidence was forthcoming that other children had been born under SACH'S auspices and transferred to WALTERS who had disposed of them in some way or other of which no explanation was forthcoming, and when it was proved that one such child had been seen dead in WALTERS'S arms in a coffee-shop, the possibility of the death which led to the arrest of the prisoners having been due to an accidental overdose of chlorodyne became too remote for acceptance. Similarly it became clear that SACH, though she did not herself kill the children, could not have been ignorant of their fate. It was left open to the accused to prove that they had in fact procured the adoption of infants by well-to-do people in accordance with their proposals to the mothers, but this they were unable to do. Upon proof of the clearest sort both women were therefore found guilty of murder and justly condemned to death.

From time to time Acts of Parliament have been passed with a view to protect the lives of infants from baby-farmers, and the most recent statute, passed in 1897, was an improvement to some extent upon its predecessors. The policy adopted by the legislature has been to make it necessary that persons undertaking the care of infants for hire should give notice of what they are doing to the local authority, so that their proceedings may to some extent become the object of supervision and inspection. It is easy to see that the operation of such laws as these can be evaded by a little ingenuity and secrecy on the part of those who ought to give the required notice, but SACH and WALTERS apparently conducted their business in such a manner that they were not in the eye of the law baby-farmers at all. SACH purported to be the manager of a maternity home and WALTERS to be the agent for the transference of the infants to foster-mothers; neither according to her own statement was a baby-farmer. The second section of the Infant Life Protection Act, 1897, orders that any person retaining or receiving for hire more than one infant under the age of five years for the purpose of nursing or maintaining such infants apart from their parents for more than 48 hours shall within those 48 hours give notice to the local authority. There was no evidence that either SACH or WALTERS ever had upon her hands more than one child at a time, or that the children ever remained with either of them for so long as 48 hours alive. It was further their custom to undertake the entire charge of the children intrusted to them, thus ridding their parents of them in consideration of a sum of money paid down. The obvious dangers of traffic of this kind have attracted the attention of the legislature, but here, again, SACH and WALTERS were safe from supervision without any need to break the law. The fifth section of the Act already referred to provides that notice shall also be given within 48 hours to the local authority by any person retaining or receiving an infant under the age of two years on consideration of a sum of money not exceeding £20 paid down and without any agreement for further payment as value for the care and bringing up of the said infant. SACH and WALTERS made their profits larger and at the same time kept themselves outside the scope of this section by the simple process of exacting from the parents of their victims more than £20. With the child of whose murder they were convicted they received £25, and in the case of one of the witnesses examined £30 had been paid, but they would have been equally safe from the obligation to notify their proceedings had they taken £20 0*s.* 6*d.* It would be interesting to know who posted these women in the law, and by enabling them to escape lesser penalties has conduced to their conviction for a capital crime. We have entered into the legal aspects of baby-farming with some detail because it behoves our readers to be aware of the existence of bogus maternity homes and of the possibility of their being instituted with the intent to defeat the objects of the laws for the regulation of baby-farming.

The following are some of the conclusions to which the facts proved at the trial of SACH and WALTERS seem almost inevitably to lead. The difference made by the law between the baby-farmers who take charge of several children at a time and those who take one at a time only is not justified by any comparative safety of the single child, and the child adopted in consideration of a larger sum than £20 needs the same protection as that accorded to the infant for whom humbler provision has been made. It has to be recognised that a number of women, not all of them poor in the sense

of being actually indigent, are desirous of getting rid of their children: to do so is of vital importance to them in gaining their livelihood. The people who relieve these parents of their offspring act from sordid and not from benevolent motives. The baby-farmer's profits by honestly carrying out the trust undertaken are likely to be but small, and they can be increased only at the expense of the adopted infant, whose death, where a single and final payment has been made, is the most lucrative issue for which the baby-farmer can hope. Insurance of the child's life, if it can be effected, may increase those profits, but infant life insurance in relation to the present method of death registration is not being considered here, as, for obvious reasons. SACH and WALTERS did not draw attention to their schemes by attempting to insure their hapless victims' lives. It has before now been urged in THE LANCET that all so-called hospitals and nursing-homes, where profit is made out of the care of the sick and helpless, should be subject to systematic inspection and supervision. In the case of SACH and WALTERS the lying-in home kept by the former was an institution the conduct of which concerned herself alone. A medical witness at the trial had attended confinements there but stated that he was only called to cases of special difficulty. It will therefore be seen that in the majority of births occurring at this establishment there was no witness even to the child's existence except persons whose interest was best served by concealing it. The cheap and easy access of women like WALTERS to concoctions containing poison is another element of danger to infant life. Chlorodyne is readily obtainable and preparations sold as sedatives for ailing children are known even by the most ignorant women to be capable of causing death if given in excess, while the plea that the excess was an accident is likely to be accepted by a merciful jury if there is no evidence to rebut it. It is fortunate in the interests of justice that in the case of SACH and WALTERS the evidence of similar transactions resulting in the disappearance of other infants was forthcoming to preclude the possibility of their innocence.

Annotations.

"Ne quid nimis."

THE NEW INEBRIATES ACT.

WE regard the working of the new Inebriates Act, which came into force upon Jan. 1st of this year, as very hopeful in some directions, though in others the results that will be obtained are rather doubtful. For example, of the wealthy classes no one will be affected by the penal clauses, save, perhaps, the very young rich man who drinks in public—a character, we are glad to think, that is becoming rarer day by day as public opinion in the services and the universities declares itself more strongly against drunkenness. The poor will be benefited despite themselves, but the rich will be able to avoid the reforming action of the law. The Act will be far less efficacious in its operation in cities than in country districts. In large towns it will be impossible to keep erring individuals from obtaining liquor and the process of notification will be almost a dead letter. Still, as the law courts have begun to show, even in such a city as London an active police by arresting drunkards can do good. The village drunkard should cease to exist, for in villages police notification will prove almost a total barrier to the obtaining of liquor. On the whole the Bill should tend to lessen the number of inebriates. Mr. F. S. D. Hogg, the superintendent of the Dalrymple Home at Rickmansworth, estimates that over 50 per cent. of those admitted into retreats for inebriety owe their downfall to sociability; and it is obvious that by far the greatest amount of social drinking takes place in public-houses. Some social inebriates may be driven by the penalties into secret drinking, but many more will be saved from the woeful penalty that is paid for a too expansive and too facile geniality. A dipsomaniac, whether regular or periodic, and whether his lapses into excess are frequent or infrequent, will, we expect, continue to drink, regardless of consequences. He may make some attempt to conceal his habit, but not much good can be expected from such a course. With regard to the clause which provides for a legal separation between husband and wife on the ground of habitual drunkenness of one or other partner its working is bound to be beneficial to the community. A certain number of persons will be relieved from a life of martyrdom and a certain number of children will obtain a chance of decent up-bringing in a respectable home, which has hitherto been denied to them. In addition, the possibility that a separation may ensue if the vicious habit is not broken will send to retreats inebriates whom no form of persuasion has hitherto constrained to seek such help. We should not, in fact, be surprised to learn that this clause of the Act proves a strong inducement to many to become total abstainers.

"THE LANCET AND ITS COMMISSIONS."

WE have received a letter from Dr. Robert Lee of Gunterstone-road, West Kensington, which is addressed to us on the envelope and within to the *British Medical Journal*. We do not pretend to guess for which journal Dr. Lee's letter was intended, but it has fallen into the right hands so far as his purpose is concerned. For he wrote it (presumably) for publication and we give to it with cheerfulness the publicity which we are certain that our esteemed contemporary would not have granted:—

THE LANCET AND ITS COMMISSIONS.

To the Editor of the British Medical Journal.

SIR,—There is something about THE LANCET Commissions which is not quite agreeable. There is a kind of advertising tone about them, of a very subtle nature, for while they promote the interests of one class they injure others unfairly, and this is most difficult to read between the lines, until the advertisement and samples arrive. The Report of a LANCET Commission goes out as part of the journal; then a short time after, a copy of the journal is sent, for no particular reason as far as one can make out; and then later another copy with the name of some firm or company interested in some particular statement in the Report to which attention is drawn, and perhaps some sample of the article is sent along with THE LANCET. The conclusion one comes to is that, probably the whole Report is nothing but an advertisement and that the claim THE LANCET makes to be perfectly independent is not consistent with the way in which the Report is used as advertisement. If a journal lays itself open to suspicion it is only right to let it be known. The *British Medical Journal* happily has not run this risk.

Yours, &c.,
DOUBTFUL.

Dr. Lee is, we suppose, referring to the investigations lately conducted by our Commissioner into Cognac and Brandy Substitutes. The value of that work to the medical profession and the public was widely acknowledged in the press and led the great growers and importers of Cognac brandy to send copies of THE LANCET to certain members of the medical profession whose addresses are in the Medical Directory and in some cases to offer samples of their produce. But of course THE LANCET had nothing to do with any of this. We gave no addresses, we sent no samples, we mailed no copies, we had no communication whatever with those who did so, and the suggestion that our action in the matter was taken in collusion with the proprietors of certain brandies

is a ridiculous one. It is also an impertinent one. Dr. Lee comes to the conclusion that the whole report is nothing but an advertisement and thinks that it is only right to let it be known; but Dr. Lee is not an unbiased judge. Perhaps he will withdraw the accusation of commercial dishonesty which he has categorically brought against the Editors of this paper now that he has received a quite unnecessary assurance from us of the independence of our actions. And perhaps he will not. Whichever course he may adopt is quite indifferent to us, as we know that our readers will believe us when we say that his suggestion that our investigation into the brandy trade of Cognac was undertaken to oblige the spirit-merchants is a childish one.

THE METROPOLITAN WATER-SUPPLY.

THE report on the condition of the metropolitan water-supply during the month of November, 1902, has been recently issued by the Water Examiner. The Thames river water was in good condition from the 1st to the 27th days of the month and of "indifferent quality" on the 28th, 29th, and 30th. The rainfall at West Molesey during the month amounted to 1·66 inches. The average daily supply delivered from the Thames was 133,297,568 gallons, from the Lee 20,492,701 gallons, from "springs" and wells 55,628,188 gallons, and from the Hampstead and Highgate ponds 685 gallons. The total average daily supply was 209,419,142 gallons for a population estimated at 6,435,126 and this represents a daily consumption per head of 32·54 gallons. The Chelsea Company delivered the largest daily amount per head (40·28 gallons) and the East London Company the smallest (26·82 gallons). The Chelsea, East London, Grand Junction, and Kent Companies delivered a smaller, and the Lambeth, New River, Southwark and Vauxhall, and West Middlesex Companies a larger average daily quantity than they did during the corresponding month of the year 1901. It may be remembered, however, that reasons have been given in THE LANCET which make it doubtful to suppose that it would be wise to place implicit trust in the figures given in the report of the Water Examiner. On this point it may suffice to refer to the notes given in THE LANCET of Jan. 10th, 1903, p. 116, Nov. 15th, 1902, p. 1336, and Oct. 18th, 1902, p. 1065, and to add that no explanation has yet been given as to the curious circumstance that water from the Langham Hotel well found its way into the mains of the West Middlesex Water Company. During the month of November the East London Company obtained supplies of water from the Southwark and Vauxhall Company "and from the New River Company aided by the Grand Junction and West Middlesex Companies." The Water Examiner states that the average daily supply passed on by the Southwark and Vauxhall Company amounted to 8,723,333 gallons and that the quantity passed on by the New River Company "if spread over the whole of the month was equivalent to an average daily supply of 4,981,100 gallons." Another account of the sources of supply of the East London Company is given on page 8 of the Water Examiner's report under the heading, "Details of the Metropolitan Water-supply and Works of the Water Companies for the month of November, 1902." In column 5 of this table, under the heading, "Average Daily Supply during the Month—Gallons," the following statement appears in reference to the company: "Supply from river Lee and storage, 4,041,673; from Thames, 8,611,000; from wells, 16,320,327; from Hanworth springs, 1,601,000; from Thames, per Southwark and Vauxhall Company, 8,738,000." It will be noticed that figures on the same subject given in different parts of the report are not identical. No explanation is given as to how it happens that the discrepancy occurs. The proportions of brown tint in samples of water observed in a two-foot tube ranged from two to 16 degrees of the standard in use. In many of the former reports of the Water Examiner it has been stated that "all the samples of water collected at the works of the companies were efficiently filtered," but the Water Examiner has never said on what authority the statement has been made, and although the question has been asked several times in THE LANCET it has never been affirmed that any sample of water collected at any "works" of any metropolitan water company has ever been submitted for analysis to Dr. T. E. Thorpe, F.R.S., the chemist to the Local Government Board. The November report of the Water Examiner does not contain the time-honoured paragraph concerning efficient filtration to which allusion has just been made. In its place occurs the following sentence: "All the samples of water collected at the works of the companies were clean, bright, and free from suspended matter." It would be interesting to know whether samples of the water of the East London Company's Thames filtering station were examined on Nov. 28th, 29th, and 30th, and if so by whom. The Water Examiner does not say on what authority he makes the statement we have quoted. Dr. T. E. Thorpe fully examined a sample of the East London Company's water which was taken on Nov. 10th, and samples of all the other companies' supplies collected on Nov. 11th. It is unfortunate that no full examination was made of the supplies during the period at which the Thames river water was in "an indifferent"—that is to say, a muddy—condition (Nov. 28th, 29th, and 30th). Dr. Thorpe found in the case of the samples which he fully examined that the relative amount of organic impurity contained in them could be represented numerically as follows: Kent, 9; New River, 12; East London, 18; West Middlesex and Grand Junction, 26; Chelsea and Lambeth, 27; and Southwark and Vauxhall, 29. All the Thames-derived supplies were found to contain more organic matter than did the corresponding samples examined in October, and the water of the New River Company contained less than half the average organic impurity found in the Thames supplies. In the case of the East London Company's water taken at Lee Bridge and "representing the filtered Lee supply," Dr. Thorpe found considerably less organic matter than in the Thames-derived supplies. Dr. Thorpe, we should imagine, has fallen into a slight error if he believes that the water at Lee Bridge correctly represents the filtered water of the river Lee. According to the account given by the engineer of the East London Company during the month of November the amount of water taken from the river Lee and storage was only a little over 4,000,000 gallons daily, whilst the amount derived from wells was over four times that quantity, and unless we are mistaken the water filtered at Lee Bridge is a mixture of river and well water. It is, however, to the Thames stations of the East London Company, and especially to the water there filtered whilst the river is muddy, that we would again direct the attention of Dr. Thorpe should the question be within his province.

WHAT IS A QUALIFIED NURSE?

THE departmental committee appointed by the Local Government Board to inquire into the question of workhouse and infirmary nursing and the difficulty which had been experienced in obtaining an adequate supply of nurses for the Poor-law service proposes to answer the above question in a somewhat novel manner, and in a way which we venture to think deserves the careful attention of those who are interested in the occupation of nursing as a whole and the standard of workhouse nursing in particular. Paragraph 90 of the committee's report proposes to recognise as "minor training schools" any of the smaller workhouses which possess (1) a superintendent nurse of the workhouse or a matron of

the separate infirmary; and (2) a medical officer who engages to devote some of his time to instructing probationers by lecture or otherwise; and in which (3) systematic instruction is given by the superintendent nurse *or* (the italics are ours) medical officer which complies with the general plan to be laid down by the Local Government Board. At the end of one year's training under these conditions the candidate is to receive a certificate, and it is proposed (paragraph 91) to create a new grade of nurse under the title of "qualified nurse." Even in thoroughly well-equipped and well-organised training schools, such as those which are attached to the metropolitan hospitals, a nurse cannot become really qualified to exercise her calling in so short a time, and the absence in small workhouses of a sufficiently varied number of cases and of modern methods of treatment and appliances renders the suggestion that she should be called a "qualified nurse" almost ludicrous. It will, indeed, be regrettable if the Local Government Board should sanction the recognition as qualified nurses of women who would hardly be trained in the elements of nursing.

THE REMOVAL OF THE VERMIFORM APPENDIX WHEN THE ABDOMEN IS OPENED FOR DISEASE OF OTHER ORGANS.

IN the *Journal of the American Medical Association* of Oct. 25th, 1902, Dr. Howard Kelly has discussed the important question, Should the vermiform appendix be removed when the abdomen is opened for disease of other organs? The relation of the vermiform appendix to pelvic surgery was suddenly brought before his attention in 1894 by the case of a patient under his care for general pelvic discomfort and dysmenorrhœa. He performed laparotomy and found a retroflexed uterus, adherent ovaries, and a relaxed vaginal outlet. He suspended the uterus, ligatured the varicose ovarian veins, and repaired the vaginal outlet, but the patient was little, if at all, improved. Some months later she had an attack of appendicitis and was operated on by another surgeon with complete relief of all her symptoms. Evidently the source of her troubles was the appendix. Since this experience Dr. Kelly has never opened the abdomen without examining the appendix whenever it was possible to do so without enlarging the incision or running the risk of conveying infection to healthy parts. Out of a series of 115 cases he has found the appendix adherent to the right tube or ovary in 10 cases, involved in adhesions in 37, congested in three, and obliterated at the base in one case. Only 64 appendices were normal. Dr. Kelly has sent a circular to the principal American surgeons requesting an answer to the question, "Is it advisable to remove the apparently normal appendix whenever the abdomen is opened for other reasons; or whenever an incision is made in the right lower quadrant?" The majority replied that they do not remove the normal appendix during an operation performed for other reasons, but always remove it if it is even slightly adherent to other organs or if though free it is abnormally long—a practice which Dr. Kelly indorses. He does not remove the normal appendix for the following reasons: 1. The operation would slightly increase the risk of danger; shock might occur at any moment and the additional five minutes consumed in the removal might have serious consequences. 2. There are no statistics to show that the existence of a normal appendix involves a definite risk per mille either of death or serious disease. 3. The appendix may have some function. As Dr. Robert Abbe asserts that the normal appendix never contains fæcal concretions, Dr. Kelly advises that if such can be felt the appendix should be removed, even though it appears healthy. He considers, further, the question whether the appendix ought not always to be removed when operations are performed near the cæcum which might give rise to adhesions. In men the risk is slight but in operations on the uterus or right ovary the appendix may become adherent to the recent wound. Dr. Kelly has observed five such cases, in which the appendix was subsequently removed. In four the appendix adhered to the stump of the right ovary and in one to a wound in the uterus from myomectomy. Dr. Kelly advises that whenever the right ovary is removed the raw stump should be protected by covering it with peritoneum and burying it out of sight. In all right-sided pelvic operations he also removes long free appendices, because an appendix which hangs free from the cæcum and is long enough to reach the field of an adjacent operation may become adherent and thus render the patient liable to an attack of appendicitis.

THE ST. BARTHOLOMEW'S HOSPITAL APPEAL.

AT a meeting of the special appeal committee of the governors of St. Bartholomew's Hospital held at the Mansion House on Jan. 19th, the Lord Mayor being in the chair, it was moved by Sir Trevor Lawrence, the treasurer of the hospital, seconded by Mr. B. Cohen, M.P., and carried unanimously:—

> That having regard to criticism upon the proposed appeal for the enlargement of St. Bartholomew's Hospital, based on inaccurate information, a committee be appointed to report: (1) whether it is desirable in the public interest and on financial grounds to retain St. Bartholomew's Hospital on its present site; (2) in the event of the retention of St. Bartholomew's Hospital on its present site whether any better scheme of rebuilding than that suggested by the governors can be devised; (3) upon any other matters affecting the hospital that the committee may think it desirable to inquire into. And that such committee consist of 15 members, nine to be nominated by the Lord Mayor and six by the treasurer of the hospital; and that the treasurer and the Lord Mayor be *ex-officio* members of such committee.

We think the resolution an eminently sensible one and congratulate the special appeal committee upon having adopted it unanimously. St. Bartholomew's Hospital has incurred criticism at the hands of many people woefully ignorant both of general matters in hospital administration and of the particular affairs of the institution and it is well that the public should know what a strong and carefully selected committee has to say upon the whole situation. We take it for granted that the committee, a majority of which will represent the public, will be strong and carefully selected, and that its report will be made upon an exhaustive examination of the facts.

GARBAGE-MONGERS.

AT the Guildhall on Jan. 19th John Oslar of Denver Lodge, Nazeing, Essex, farmer and butcher, was summoned for sending to the Central Meat Market two quarters and two flanks of diseased meat, intending it for sale as human food. The meat came from a cow which had belonged to a Mr. Dean living in the neighbourhood of Nazeing. This cow accidentally strangled itself in its stall and was found dead. The carcass was dragged out into the yard and "stuck," when a little blood flowed. A knacker was summoned to take the carcass away, but on his way the knacker called on Oslar and asked him "if he could do with it." Oslar consented, paid the knacker 20*s.*, and promised a load of hay in addition. He dressed the meat and sent it to market. Dr. W. Collingridge said that the meat was filthy and horrible. Oslar was fined £50 and costs or two months' imprisonment. On the same day, at Westminster, Enoch Phillips of Sloane-street, Chelsea, was summoned by the Chelsea borough council for exposing for sale as food on Jan. 9th a large quantity of game and poultry which was unfit for food. Dr. Louis C. Parkes said that the game was lying in ice and water; it was sodden and putrid. Defendant was fined £10 and two guineas costs. We have said over and over again that persons who sell or try to sell putrid meat for food are neither more nor less than potential murderers. No fine is heavy enough; punishment and imprisonment with hard labour should

certainly be the portion of all such infamous persons. Phillips's case was not as bad as that of Oslar, for he does not seem to have been personally responsible, but considering that a homeless vagabond constantly gets three months' imprisonment for "sleeping out" it is a scandal that men can get off with a money payment when they have, in the pursuit of money only, deliberately tried to poison their fellow-creatures.

THE NEW PRINCIPAL OF THE UNIVERSITY OF EDINBURGH.

WE congratulate Sir William Turner upon his appointment as Principal of the University of Edinburgh in succession to Sir William Muir. Sir William Turner's long and distinguished services to his *alma mater* as a professor are rightly recognised by this call to the head of the University. His sound business qualities, energy, and tact, which have been so much in evidence in his conduct of affairs as President of the General Medical Council, may be invaluable to the University of Edinburgh in the present crisis in things educational.

THE CUTANEOUS EXCRETION OF CARBON DIOXIDE AND WATER IN MAN.

WHILST the excretion of carbon dioxide and water from limited areas of the skin has been the subject of repeated observations the quantity of these substances eliminated from the whole surface has rarely been examined. The well-known researches of Gerlach, Reinhard, Erismann, Fubini, and Rorchi made on limited areas demonstrated, speaking generally, that the excretion of water is increased either by a rise in the external temperature or by a diminution in the relative moisture of the surrounding air whilst that of carbon dioxide is clearly subject to the influences of varying temperature, so that with a higher temperature more carbon dioxide is discharged. Aubert and Lange inclosed the whole body in a chest with the exception of the head and passed through the chest for two hours by means of a pump a continuous stream of air free from carbon dioxide, the quantity of which was estimated in the air escaping from the chamber. The temperature in their experiments varied from 29° to 33° C., and the average quantity of carbon dioxide estimated to be eliminated in the 24 hours was 4 grammes, or a little more than 60 grains. Temperature was shown by these observers to have great influence on the discharge of the gas, for at 29·6° C. only 2·9 grammes were eliminated in 24 hours, whilst in the same period at a temperature of 33° C. no less than 6·3 grammes were thrown out. Schierbeck, experimenting in a similar manner on persons sitting naked and clothed, found that in the latter case below a temperature of 33° C. (91° F.) the perspiration remained insensible, but at higher temperatures than this sweating commenced. In those who were clothed much more insensible perspiration was given off than in those who were naked. Without clothes 22·2 grammes of water were eliminated per hour at 29·8° C., 27·8 grammes at 30·4° C., and so on proportionally to 38·4° when 158·8 grammes were eliminated. Schierbeck came to the conclusion that when clothed and at rest and at a temperature of 32° C. the total perspiration amounted to from two to three litres in 24 hours. In regard to carbon dioxide, Schierbeck found that it remained nearly uniform between 29° and 33° C., and amounted to about eight grammes in 24 hours. On exposure to temperatures above 33° C. the quantity eliminated rose rapidly so that at about 34° C. it was nearly double. The subject has again been taken up by E. A. von Willebrand, who gives the results of his inquiries (made in Professor Tigerstedt's physiological laboratory at Helsingfors) in the last part of the *Scandinarisches Archiv für Physiologie* for the year 1902. In the first series of researches the elimination of water was estimated at temperatures from 12° to 30° C. In a second series the temperature of the air admitted to the chest in which the person experimented on sat varied from 18° to 31·5° C. Each experiment lasted for about two hours and the subject was a healthy man, 26 years of age, who weighed 68 kilogrammes. At 12° C. the insensible perspiration amounted to 10·52 grammes per hour and at 28° C. it was 27·25 grammes per hour. The graphic curves which are plotted out show that the excretion of water by the skin by insensible perspiration when the body is at complete rest rises slowly and proportionally to the increase of the temperature in the surrounding air from 12° C. to some point between 30° and 33° C. when sweating occurs. In regard to the elimination of carbon dioxide the experiments show that the excretion of this gas by the skin when the body is at complete rest remains unchanged between 20° and 33° C., being about seven or eight grammes in 24 hours; but where the temperature rises so high as to cause sweating—that is to say, at about 33° C.—the discharge of carbon dioxide is suddenly doubled or even trebled. It may be added that von Willebrand agrees with Krause and Donders that the insensible perspiration is essentially a physical process and is the result of simple evaporation from the surface of the skin. Sensible perspiration or sweat is, of course, the secretion of the sudoriparous glands.

REFORM IN BURIAL INSURANCE.

THE crime for which the women Sach and Walters now lie under the death penalty has revealed to the public of how little importance infant life is to a certain section of the community and Mr. Justice Darling has done good service by directing attention to the present system of child insurance in a case which recently came under his notice. This arrangement, with whatever motive and reason it may have been initiated, has the disadvantage of making no adequate provision for the safety of the child. As the case now stands a parent can only recover invested money by the death of the child and, moreover, the sum insured is frequently in excess of that which would be required by many poor parents or guardians of children for actual burial expenses. As events have proved, insurance has in very many cases gone hand in hand with neglect and illness conducive to a fatal issue. Mr. Justice Darling's protest in favour of fresh legislation on this subject is practically identical with that of numerous tongues and pens which for years past have striven to bring about a fairer arrangement. It is truly remarkable with what foresight even poor, idle, and dissipated parents, while denying their younger children the barest, most obvious necessaries of life, are still able to maintain an insurance for burial expenses. Too much, perhaps, has been made of the alleged necessity for such a provision in the case of death among the children of the poor. Funeral expenses under such conditions need not exceed a very small sum indeed. The bulk of such outlay if used at all in connexion with the burial would probably be employed upon matters of entirely secondary moment which might be to a great extent dispensed with. When not so used, a frequent alternative, it represents money in the parents' pocket, not, it is reasonable to suppose, without a possibility that it will quickly find its way to that of the neighbouring publican. There is a widely prevalent impression that such a course as this describes the circulation of burial insurance money in a large number of cases. The possible peril to a child's well-being is obvious, and this danger, illustrated as it has been by the teaching of experience, has aroused a feeling in favour of reform which continues to gain in strength. A legislature which has done so much to remove the evils which beset the lot of children, and especially of poor children, may well be

expected to interest itself in providing necessary safeguards against the abuse of this form of insurance. What measures may be best adapted to this end remains to be considered. We are of opinion that the present method, by which the insuring party receives a certain sum in the event of a child's death, is not the best possible. On the other hand, every useful purpose would be served by an engagement which would guarantee the payment of all *bonâ-fide* expense incurred for burial up to a certain money value. The parent could thus reap no advantage from the death of a child, while, on the other hand, the only legitimate object of insurance would be fully provided for.

THE RELATIVE WHOLESOMENESS OF POTABLE SPIRITS.

IT is generally admitted that age not only gives an agreeable or palatable character to potable spirits, such as genuine brandy or whisky, but also renders them more wholesome. The chemistry of these spirits, however, does not simplify with age; indeed, as a rule, it becomes more complex. Therefore, it can hardly be assumed that because a given spirit is chemically purer than another it is more wholesome. If the degree of wholesomeness of a spirit depends upon its simplicity of composition obviously the most wholesome would be chemically pure alcohol, and grain spirit approaches much more nearly to the composition of chemically pure alcohol than does malt whisky, rum, or genuine brandy. Chemically speaking, starch, or what is nearly the same thing, grain, transformed by a hydrolytic agent such as sulphuric acid into sugar, instead of by the agency of an enzyme or ferment, yields a much purer alcohol than does barley that has been malted and converted into sugar by the diastasic process. Still less pure, chemically speaking, is the spirit derived from the very complex fluid wine, and yet who will assert that genuine old brandy is less wholesome than whisky? In short, the alcohol obtained from grain by a rapid chemical process is much purer than that obtained from barley malt or the grape by what may be called a slow natural process. After all, the natural process is a chemical one, but the distinction, however, remains that whereas in grain spirit the alcohol is the product of the fermentation of an artificially prepared sugar which is very pure, malt whisky and brandy owe their existence to more or less naturally derived sugar which is associated with other things. These sugar-associates contribute the characteristic flavour to the spirit. We may thus account for the differences between brandy, rum, and whisky, and malt whisky and grain spirit. Pure grain alcohol is without flavour and by itself unpalatable, and therefore for drinking purposes it must be flavoured by blending with it genuine old whisky or brandy. This means, in other words, that the bulk of old whisky or brandy is considerably increased by adding grain spirit to it. It is an act of dilution much as is the addition of water to milk. It is the old story of substitution, but we maintain that when malt whisky or brandy is demanded it should be supplied, apart altogether from the question whether grain spirit is more wholesome than malt or grape spirit. The physiological action of potable spirit though largely, of course is not entirely, that of alcohol. A carefully conducted chemical analysis distinguishes one spirit from another to some extent by revealing variations in the amounts, or it may be the absence of secondary constituents or what the French chemists call "impuretés." It is reasonable to suppose that if there are chemical differences there must be physiological differences also and experience shows that such is the case. Moreover, analysis also indicates differences existing between the composition of raw and matured spirits, but in this case the difference of physiological action is much more marked than chemistry is able at present to explain. What is needed in order to throw light upon the question is a series of physiological or personal experiments in which the effects of absolutely pure ethyl alcohol could be observed and compared with those obtained with all classes of potable spirit. So far, however, experience is in favour of matured spirits being made from materials such as grape, malt, and sugar, which are resolved slowly into alcohol by the aid of natural agencies and without resort to chemical operations, the only justification for which is to expedite the process and thus to cheapen the product.

IMPUDENT QUACKS AND THE NAME OF THE LANCET.

IN THE LANCET of Sept. 20th, 1902, p. 829, we exposed an improper attempt made in New Zealand to appropriate the name of THE LANCET in respect of a so-called influenza cure. Our solicitors in due course communicated with the offending drug company who, in a very ungracious manner, have replied saying that they have destroyed all the labels and printed matter to which we took exception. Later we had to complain[1] of the use of the name of THE LANCET by a firm of druggists at Bombay. This firm on a communication being made to them promptly destroyed the labels in respect of which complaint was made and signed an adequate apology.

HUMAN RUMINANTS.

AUTHENTICATED cases of rumination in the human subject are of sufficient rarity to be interesting and worthy of note. Dr. L. R. Müller of Erlangen, in the *Münchener Medicinische Wochenschrift* of August 5th, 1902, records three cases occurring in one family in the persons of a father and his two sons with a necropsy in the case of the former. In this case the act first began at the age of six years and persisted till the death of the patient in his fiftieth year. He had always been a rapid feeder, swallowing his food incompletely masticated, while about 15 to 20 minutes after the end of the meal the act of rumination commenced and lasted for from half an hour to one hour. The food substances were returned to the mouth at intervals of from three to four minutes, were masticated and re-swallowed; they possessed their natural taste, and only during and after this process did the patient derive any sense of enjoyment from his food. If the act were voluntarily prevented a disagreeable sensation in the stomach supervened. No other gastric symptoms occurred till about six months before the death of the patient, when pain with persistent vomiting and rapid cachexia led to a diagnosis of malignant disease of the stomach. This was confirmed at the necropsy when an "hour-glass" condition of the stomach was found, the septum being the site of the cancerous growth, and the œsophagus and cardiac orifice of the stomach were dilated to such a degree as to admit three fingers. From the appearances presented by the stomach Dr. Müller concluded that the hour-glass condition was not the result of the growth. Two sons of the patient, the younger of whom was 22 years old, had also regurgitated and re-masticated their food, although the father was not aware of this. Another case is recorded by Dr. Ferrannini in the *Riforma Medica* of Oct. 11th, 1902, in a young man of neuropathic tendencies in whom both solids and liquids returned; as in the former case the regurgitated materials had their natural taste; they were alkaline in reaction. The motor, digestive, and absorbent properties of the stomach were otherwise natural. Cases of rumination or

[1] THE LANCET, Dec. 13th, 1902, p. 1653.

merycism in the human subject have been known since the time of Fabricius in 1618 and considerably more than 100 cases have now been recorded. The first case above recorded is typical of the condition except that an hour-glass form of stomach is very rarely found. The process is usually though not invariably permanent. Various explanations have been suggested. Dr. Müller regards the condition as atavistic in origin, while Dr. Ferrannini explains his case as a gastric neurosis. Dr. Alt supposed that the condition was an attempt to correct defective primary mastication of the food which is very frequently observed in these cases. Others have suggested mimicry as the explanation of the family associations of this condition, but in Dr. Müller's cases, no one of the three was aware of the condition in his relatives.

THE MEDICAL DIRECTORY FOR 1903.

THE issue of Messrs. J. and A. Churchill's valuable Medical Directory for the current year presents some new features. The size of the page has been enlarged to royal octavo, whereby the thickness of the volume is reduced, while the date of the year is stamped on the two side covers as well as on the back. The total number of names for 1903 is 37,291 as against 36,788 for 1902, an increase of 503. Of departmental increase the most marked is in the number of Irish practitioners, the number for 1903 being 2641 as against 2587 in 1902. Registered practitioners resident abroad have increased from 3952 in 1902 to 4117 in 1903. The introductory articles are decreased by the disappearance of the article on the Army Medical School, Netley, but increased by an article upon the Medical Staff College, R.A.M.C. Two other articles appearing in this year's issue are a list of royal commissions dealing with medical and public health questions and a list of London coroners. The Medical Directory is not generally supposed to be a humorous work, but we have derived unfeigned amusement from the classified list of books advertised in the following pages (viii.–xxxv.). The catalogue, which we will say at the outset is exceedingly useful, is divided into headings and subheadings, and it is the latter which are so quaint. Thus we find: Beale's Liver, Foxwell's Liver, Windle's Surface, West's Chest, Woakes' Deafness, Fenwick's Urethra, Scott's Urine, Campbell's Flushing, Luff's Gout, Beevor's Diseases, Beale's Morality, Haig's Uric Acid, Morris' Ringworm, Bryant's Breast, Eccles' Imp. Descended Testis, and Bland-Sutton's Ovaries. Notwithstanding the improvements in the Directory the price remains the same as heretofore, and Messrs. Churchill are to be congratulated upon the continued excellence of their publication.

TABES DORSALIS: A STUDY OF 140 CASES.

THE medico-statistical study of nervous disease has made considerable progress during recent years. An interesting statistical study of 155 cases of tabes dorsalis by Dr. Byrom Bramwell was made the subject of an annotation in THE LANCET[1] in May last. Professor Joseph Collins of New York has published in the *Medical News* of Jan. 3rd, 1903, an account of tabes dorsalis based upon a personal study of 140 cases. Of these 52 were private patients, 47 were hospital patients, and 41 were dispensary patients. Many of these patients had been under observation for upwards of ten years, so that something could be learned in reference to the prognosis. As regards sex, 124 were males and 16 were females, a ratio of 15 males to two females. Of the males 12 were single, 78 were married, and 12 were widowers, no facts being stated concerning the rest. Of the females, six were single, six were married, and four were widows. The average age of onset of the disease was 38 years. 22 cases began between the ages of 20 and 30 years, 48 cases between 30 and 40 years, 45 cases between 40 and 50 years, and 14 cases between 50 and 60 years. In one patient the symptoms began at the age of 18 years and in another at 60 years. The age of onset was earlier in women than in men, 50 per cent. of the female cases occurring between 20 and 30 years of age, as compared with 11 per cent. of males for the same period. Syphilis was ascertained to have existed in 85 males, or 68 per cent., while in 19 more its presence was probable though not certain. The syphilis is said to have been slight in 80 of these cases. Of the 16 female cases some denied syphilis, but it was ascertained by inquiry that several of them had contracted it from husbands or lovers and that 11 of them, or 70 per cent., had thus been positively infected. As regards alcoholic habits, it was found that 42 of the 140 patients had been intemperate drinkers. Traumatism as an etiological factor was found only in five instances, one of these following a street car accident. In only seven cases could mental or physical overstrain be ascertained to have played a part in the etiology. "The preponderating influence of syphilis," adds Professor Collins, "is shown in cases of tabes affecting both husband and wife, of which several cases were met with." A survey of the medical literature of Germany, Great Britain, and the United States is also added and seems to bear out this statement. As to the *modus operandi* of syphilis in bringing about tabes Professor Collins states that we know very little. All we do know of the pathogenesis of tabes may be, he concludes, very briefly summed up: it occurs in civilised mature men and women who have had syphilis and in children who have inherited syphilis, but why it occurs we do not know.

[1] THE LANCET, May 31st, 1902, p. 1551.

THE PREVALENCE OF SMALL-POX.

AT a meeting of the Wigan board of guardians held on Jan. 2nd the following letter, addressed to the clerk, was read from Mr. William Berry, medical officer of health of Wigan:—

Dear Sir,—In consequence of the outbreak of small-pox in one of the lodging-houses of this borough and the further prevalence of the disease in the towns surrounding Wigan I beg to call the attention of your board to the necessity of vaccination and revaccination as the only true prophylactic measure known. I wish to suggest that it would be well to revaccinate those officers of the workhouse who have to deal with the nomad class, which is answerable for its introduction into the town. It would be well also that the inmates of the workhouse should have the opportunity of being revaccinated. I do not think it necessary, for the present at all events, that the guardians should make special arrangements for the purposes of revaccination, but I should like it to be made known that the public vaccinator is willing to revaccinate any person who applies to have the operation performed. I am informed that recently the tramp wards have not provided ample accommodation for the numbers who have sought a night's lodging, and if this is so it is very desirable that the medical officer of the workhouse should have the opportunity of examining and revaccinating them before sending them out to the common lodging-houses; in fact, it would be well to compel the tramps who have not recently been revaccinated to submit to the operation before giving them a night's lodgings.

Mr. Fairhurst thereupon moved that the letter should lie on the table and Mrs. Alice Johnson seconded this motion. The latter also asked, "Don't you think that if they had a good bath it would be better than vaccination?" She also is reported as saying, "There is nobody but the doctors to benefit by vaccination. That is why the doctors have so much to say about it." Eventually a resolution was carried that Mr. Berry should be informed of the receipt of his letter and that the board was taking all precautions to prevent the spread of the disease. Now it is unfortunately a fact that no board of guardians has any power compulsorily to vaccinate tramps or anyone else, but it is also a fact that small-pox is often spread by tramps, and that more especially in the winter. Mrs. Johnson is, we suppose, an anti-vaccinationist but her remark about "nobody but the doctors benefiting by vaccination" is a piece of silly rudeness. We have no information as to what the board of guardians is doing to

stay the spread of small-pox, but powers should be given for the compulsory vaccination of every tramp who could not prove that he had been vaccinated within the past seven years. The Local Government Board for Scotland intimates that during the period from Jan. 1st to 15th inclusive only one case of small-pox has been notified to them—viz., the the case of a seaman on board a ship which arrived at Glasgow on Jan. 1st. Several cases of small-pox have occurred in Nottingham and it is stated that four of the patients are totally unvaccinated.

THE DISTRIBUTION OF PLAGUE.

THE medical officer of health of Cape Colony reports that for the week ending Dec. 27th, 1902, 2 cases of plague were discovered at Port Elizabeth, the one being in a native male adult who was found dead on Dec. 24th and the other being that of a European male adult notified on Dec. 26th. At the end of the week 2 cases remained under treatment at the Plague Hospital at Port Elizabeth. The last preceding case of plague notified occurred on Dec. 19th. No case of plague has been discovered or was under treatment in any other place in the Colony during the week in question. As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on Jan. 16th states that for the week ending Jan. 15th there had been 18 cases of bubonic plague and 10 deaths from the disease.

DANGEROUS GAS-HEATERS AND COAL-GAS POISONING.

CARBON monoxide is rapidly becoming a modern terror, for undoubtedly the number of victims to carbon-monoxide poisoning is decidedly on the increase. Sometimes the gas occurs as a product of incomplete combustion owing to a defect in the gas-heater, as was the case in the regrettable death of Mr. Quintin Hogg in a bathroom at the Polytechnic Institute last week, and sometimes it reaches its victim through the escape of coal gas from a defective gas pendant. Two children lost their lives last week by this latter means: there was no water in the seal of the chandelier and gas freely escaped into the room in which they were sleeping. We unequivocally condemned this wretched gas appliance a long time ago. Gas companies, we maintain, should be compelled to supply all their customers using gas-stoves with printed directions as to their management, and it seems to us that the increasing proportion of carbon monoxide in coal gas calls for serious investigation.

THE KING'S SANATORIUM: A NOVEL SCHEME.

ONE of the schemes sent in for competition, which the author has permitted us to see, involved principles entirely at variance with the successful ones in its suggestions for treating tuberculous patients. The gist of it lay in an attempt to furnish the patients—who would be completely isolated, collectively and individually, within the sanatorium on the hillside—with a plentiful supply of air, fresh from the summit of a hill, of regulated temperature and moisture. The air, for instance, would need drying when a cloud or heavy mist capped the hill-top; it would require moistening and warming when easterly and north-easterly winds prevailed, and toning down when too "shrewd" or frosty. This scheme advised that the air (modified when necessary) should flow continuously up through the perforated floor of the patient's cubicle, rising evenly throughout the room, and should pass away through the perforated ceiling to a foul-air chamber, whence it would be drawn away to feed the flames at the destructor. A great point in the scheme was the complete destruction by heat of all liquid, solid, and gaseous refuse. The writer believes that his method of ventilation could be superseded by flooding the rooms with fresh air from the top and drawing it away from the bottom of the cubicle, a plan already successfully adopted in some places; he thinks that there should be a double foul-air system in order to keep separate the ward and drainage ventilation and that all the patients' cubicles should face the front. The author of the scheme has founded his plan upon a view that the treatment of weak, sensitive patients by the open-air method will eventually break down in England. This, of course, is not accepted opinion, but undoubtedly it is necessary that we should remember that when we have placed a tuberculous person, regardless of his individual condition, in the open air, and not paid sufficient attention to the quality of that air, we may not have done our best for him or her.

THE INDEX MEDICUS: SECOND SERIES.

THE Index Medicus, which was established in 1879 and discontinued in 1899, has now been resumed. The present publication, which is undertaken by the Carnegie Institution in Washington, will be known as Index Medicus, Second Series, Volume I., commencing in January, 1903. It consists of the titles in full of books, pamphlets, theses, contributions to coöperative works, and original articles in journals, transactions of medical and scientific societies, and the like arranged under subject-headings. On the completion of the volume an "Annual Index of Authors and Subjects" will be issued. The subject part of this annual index will be elaborately subdivided, the classification closely resembling that of the Index Catalogue of the Library of the Surgeon-General's Office. The annual subscription, payable in advance, is $5, or 25s. All communications relating to subscriptions should be addressed: Carnegie Institution, Washington, D.C. Letters relating to the editorial department should be addressed: Editors, Index Medicus, Washington, D.C.

STRONG MEASURES AGAINST SMALL-POX AT PHILADELPHIA.

THE city of Philadelphia seems constantly in difficulties. When there is no epidemic of typhoid fever then small-pox breaks out, and when small-pox ceases typhoid fever returns. Now both these diseases have come together and this in spite of an improved water-supply and energetic measures to vaccinate the whole population. Indeed, small-pox has broken out among those engaged as it were in the prevention of typhoid fever. There are some 500 negro labourers employed at a filtration conduit and filter beds. At shaft No. 8 one negro was seized with small-pox and removed at once to the hospital, but at almost the same time two other cases occurred at shaft No. 6. The huts which these patients occupied have been "quarantined" and their inmates—there are generally ten negroes in each hut—are kept prisoners. The police are stationed round the huts to prevent all intercourse with their inhabitants who are thus kept in idleness in a confined space waiting for small-pox to attack them or for their daily allowance of food to be handed to them through the windows of their huts. We are now told that all the coloured men are to be vaccinated, which assuredly is a better precaution. Ten policemen are told off to watch each hut, and this display of force has naturally helped to spread a panic among the labourers engaged at the waterworks which it is anticipated will be the means of preventing typhoid fever by giving the inhabitants of Philadelphia pure water to drink. Throughout the town the police have been paying house-to-house visits to ascertain how many inhabitants have not been vaccinated within the last five years. Arrangements are made for the immediate vaccination or revaccination of such persons. These precautions are useful, but they should be supplemented by measures to prevent overcrowding and to remedy structural

sanitary defects which exist in the large towns of America as well as in those of the old world.

CHOLERA IN EGYPT.

THE following figures show the distribution of cases of, and deaths from, cholera throughout Egypt during the week ending Jan. 5th. During this period 6 cases of cholera occurred, against 49 in the previous week, thus showing a diminution of 43 cases. During the same week 2 persons were found dead out of hospital and 3 persons died in hospital, against 13 deaths out of hospital and 19 deaths in hospital in the previous week, thus showing a total diminution of 27 in the number of deaths. The 6 cases of cholera mentioned above occurred at Alexandria, there having been the same number in the preceding week. During the week ending Jan. 12th no cases or deaths from cholera occurred throughout Egypt.

THE WEATHER AND THE STREETS.

DURING the first frost of this winter we called attention in THE LANCET of Dec. 13th, 1902, p. 1645, to the disgraceful condition of the streets under the care of the City of Westminster. With the recent return of cold weather the matter at last penetrated to the council chamber and at the meeting held on Jan. 15th the question was discussed. Dr. H. A. Des Voeux and Mr. MacConnell both gave evidence as to the dangerous condition of the streets, the latter referring especially to Hyde Park Corner. He had made inquiries and was told that there was no ballast. As we have said before Westminster is addicted to the use of salt. This is an odious custom. True it removes ice, but the removal only substitutes a cold slush, and owing to the hygroscopic qualities of salt the road never dries. Lord Doneraile said that he could not agree that there was no ballast. We do not know whether there is ballast or not, but anyway the authorities of Westminster do not put it down. The matter was referred to the works committee and there we suppose it will stop, especially as the frost has for the present disappeared. It never seems to strike the authorities that damp greasy roads such as existed during the first four days at least of this week are almost as slippery as frozen roads, and in the Strand and the adjoining streets no ballast has been put down, with the result that fallen horses have been many. Not very far from Westminster is a place called Kensington; here is being erected a new building called the Victoria and Albert Museum. Tons of gravel have been displaced to make way for the foundations of this building, and we have no doubt that the Westminster authorities could buy some of this if they so desired. One member said that the Westminster council was "bossed" by its officials. All we can say is that if the Westminster officials do not do as they are told they had better, as Mr. MacConnell suggested, be dismissed.

Mr. Frederick James Quick of Eltham, and late of Trinity Hall, Cambridge, senior partner of the firm of Messrs. Quick, Reek, and Smith, of 148, Fenchurch-street, London, E.C., coffee dealers, who died on Dec. 21st last, has left his residuary estate to the University of Cambridge in trust to apply the income in the promotion of the study and research of vegetable and animal biology. The University will eventually receive about £50,000 or £60,000.

THE annual dinner of the British Gynæcological Society will take place at the Café Monico, Piccadilly-circus, London, W., on Thursday, Jan. 29th, at 7 for 7.30 P.M. The President, Sir John Halliday Croom, will occupy the chair. Tickets, price 10*s.* 6*d.* each, may be obtained from the secretary, Dr. J. H. Swanton, 40, Harley-street, Cavendish-square, London, W. Ladies may be invited as guests.

Sir Michael Foster has publicly announced that the answers which Sir John Rotton has received to the inquiry made on his behalf have fully assured him that he may feel justified in renouncing his intention to resign his seat as Parliamentary representative of the University of London.

THE usual course of post-graduate lectures will be delivered at the Brompton Hospital for Consumption on Wednesdays. The opening lecture of this session will be delivered on Jan. 28th, at 4 P.M., by Mr. Stanley Boyd, whose subject will be Pleural Effusions and their Surgical Treatment.

Mr. Thomas Sutton Timmis of Allerton, near Liverpool, has vested a sum of £10,000 in trustees for systematic research into the origin and cure of cancer. The research will be undertaken at the Liverpool Royal Infirmary and in the laboratories of University College, Liverpool.

TENTH ANNUAL REPORT (FOR 1901) OF THE MEDICAL OFFICER OF HEALTH OF THE ADMINISTRATIVE COUNTY OF LONDON.

[FIRST NOTICE.]

THE publication of the local returns of the recent census has been promptly and judiciously turned to account by Mr. Shirley Murphy in the compilation of his tenth annual report just issued. In this volume he has given an account of the vital statistics for 1901 of the administrative County of London, a record which derives additional value from the fact that all the rates are calculated on the population figures for that year. The census returns have been still further utilised by him for the preparation of a life table for London, based on the enumerated population at the censuses of 1891 and 1901, and on the mortality in the county during the intervening period. The report before us, with diagrams and appendices, covers about 150 closely printed folio pages and, like its predecessors, it is divided broadly into two sections, the first mainly statistical and the second administrative. It is impracticable, within the space at our disposal, to do more than to notice the former of these sections and this we propose to do by distributing the matter over two articles, the first dealing with the recent outbreak of small-pox in London and the second treating of the general vital statistics and sanitary condition of the metropolis during the year 1901 and its nine immediate predecessors.

The epidemic of small-pox, which is now practically at an end in London, although the disease still continues to spread in certain other parts of England, commenced in 1900. During the period which has since elapsed the presence of the disease in the midst of the densely crowded and ill-vaccinated populations of our poorer districts has caused grave anxiety and very serious trouble and expense to the Metropolitan Asylums Board and to the county and borough councils and their officers, all of whom appear to have performed their various duties in a manner worthy of high praise. In his ninth annual report Mr. Shirley Murphy gave an account of the occurrences of small-pox in the course of that year. Inasmuch as the epidemic extended far into the summer of 1902 it is not as yet possible to discuss completely the behaviour of the outbreak as a whole. Nevertheless, it is instructive to review the manner in which small-pox became diffused throughout the metropolis in 1901, causing some 1700 cases in that year alone. As Mr. Shirley Murphy has devoted considerable attention and no small portion of his space to this subject we propose to summarise very briefly his account of it for the information of our readers. By the help of statistical tables and a useful diagram the history of small-pox in

the metropolis is traced through a long series of years, both as regards incidence and mortality. We note that until the recent outbreak the disease had not been seriously prevalent amongst us since 1893, in which year 7815 cases were reported, whilst the total number notified in 1901 did not exceed 1700. But although the attack incidence during the latter year was considerably lower than that of the former, the mortality in proportion to population was nevertheless considerably higher, the small-pox death-rates being 0·040 per 1000 in 1893 and 0·051 per 1000 in 1901. Until the history of the recent epidemic can be considered as a whole it is perhaps unsafe to attempt an explanation of this remarkable difference; age distribution may have had something to do with it, but it is far from improbable that it is due mainly to differences in the degree of vaccinal protection against fatal small-pox possessed by the population generally at the respective periods. Very early in his account of the recent outbreak Mr. Shirley Murphy gives prominence to the fact that in a relatively large number of instances cases of illness were erroneously notified as small-pox and were actually removed from their homes to hospital under the mistaken impression that they were suffering from that disease. As a consequence the persons referred to were unnecessarily exposed to infection and in this way further diffusion of the disease is not unlikely to have occurred. We have before drawn the attention of our readers to the fact that in recent years, in consequence of the disappearance from amongst us of certain formerly common infectious diseases—typhus fever, for example—medical practitioners enjoy at the present day fewer opportunities of becoming familiar, clinically, with these diseases; and we see in this fact a danger to the public health of our crowded districts against which it behoves us as a profession to be on our guard. This is notably the case with regard to small-pox also, but we certainly were not prepared for the statement, which we have on the authority of the county medical officer of health, that in so large a proportion as 13·3 per cent. of the notified cases the diagnosis of small-pox had turned out on investigation to be incorrect.

It is gratifying in these circumstances to place on record the admirable temper in which the authorities, under Mr. Shirley Murphy's guidance, dealt with this unsatisfactory state of things. There is no doubt that in certain cases there exists a real difficulty in distinguishing variola from varicella, especially when, as is frequently the case, the former disease is modified by vaccination. Recognising this difficulty, and with praiseworthy determination to meet it, several of the metropolitan vestries, and ultimately the County Council, agreed to schedule chicken-pox among the infectious diseases, notification of which should be for a time required under the Local Act. The last-mentioned authority further made arrangements by which the services of medical men specially familiar with small-pox were made generally available in obscure cases for purposes of diagnosis. There can be no doubt whatever that the prompt adoption of these prudent expedients has had the effect of bringing to an early close an epidemic which at one time threatened to assume unmanageable proportions. The compulsory notification of chicken-pox has been turned to account statistically by Mr. Shirley Murphy to show the age distribution of chicken-pox and incidentally its relation in time and place to the prevalence of the graver disease. From the year 1901 up to the present time the county medical officer of health has published week by week particulars of the local distribution of *varicella* in each of the London boroughs, and also of the notified attacks of this malady at the various ages from early infancy onwards. This information, which is now available in England for the first time, will, if we mistake not, be shown at no distant date to possess considerable scientific importance from the point of view of preventive medicine.

The history of recent metropolitan small-pox diffusion from initial attacks is given with sufficient fulness in Mr. Shirley Murphy's report; the details do not differ essentially from those which have been experienced in previous epidemics elsewhere, whenever record has been preserved with equal minuteness.

It is the old story of unrecognised and unsuspected cases obtaining entrance into elementary schools, common lodging-houses, and even into workhouses and into the wards of general hospitals. Mr. Shirley Murphy gives an account of the steps taken by the medical officers of health of infected districts with the object of limiting the spread of the disease. In some districts these included an inspection of the children in schools, with a view of ascertaining whether or not they had been vaccinated. Some of the local medical officers of health show in their reports the proportion of children whose parents posed as "conscientious objectors" to vaccination and also the proportion of children found on examination to be unvaccinated. Thus, in Greenwich between 7000 and 8000 children were inspected, of whom less than 10 per cent. exhibited satisfactory marks of vaccination and the parents of more than 5000 of these refused to submit their children to the operation.

Throughout London generally there was during the epidemic, and probably from fear of it, considerable resort both to vaccination and to revaccination. In Islington 1866 children were vaccinated in consequence of the action of the authorities, and in Westminster nearly 10,000 were revaccinated by the public vaccinators alone, leaving a probably larger number who resorted for protection to their private medical attendants.

THE IMPERIAL VACCINATION LEAGUE.

DEPUTATION TO THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD.

AN influential deputation from the Imperial Vaccination League was received by Mr. Walter Long, the President of the Local Government Board, on Jan. 14th.

At the commencement of the proceedings Sir JAMES CRICHTON BROWNE read a letter from the Duke of Northumberland, President of the League, who was unavoidably absent, in which His Grace strongly urged careful administration of the present Acts relating to small-pox and their extension and improvement.

Sir WILLIAM CHURCH, Bart., K.C.B., who introduced the deputation, pointed out that the Imperial Vaccination League was not a medical association; naturally a large number of medical men were included among its members, but the main strength of the Imperial Vaccination League consisted in the support which it received from the general public. The points which the League particularly desired to bring to Mr. Long's notice were these: the necessity for efficient infant vaccination and for revaccination at a later period of life and the removal of the administration of the Act from the guardians of the poor to some other body. They also desired to draw attention to the very large expense which was entailed upon districts and upon the country at large in the event of an epidemic of small-pox either taking place or being feared. They also wished to draw attention to the necessity for the making of arrangements by which a larger supply of lymph prepared under efficient observation might be obtained.

Professor CLIFFORD ALLBUTT, M.D., after referring to the dislocation of the business of the country which a small-pox epidemic caused, said that the deputation consisted largely of men of business—ship-owners, bankers, presidents of chambers of commerce, and large employers of labour. It was they who came there that day to explain that the beneficent effect of vaccination had not been carried far enough. The time had come when others than medical men were pressing upon the Government that the Vaccination Acts ought to be revised. Statistics had recently been shown to him, he said, which indicated that among the population of Berlin small-pox had virtually ceased. The sporadic cases which occurred in Berlin had come virtually from other countries. If these were extracted from the small-pox statistics of Berlin small-pox might be said to be non existent in that city. If children were revaccinated at the ages of 10 or 12 years there was a probability that the protection which vaccination afforded would extend to the end of their lives, and he urged that parents should be helped to carry out such needful protection to their children. He welcomed the conscientious objector who had caused them to examine their arguments, to revise their methods of research, and had kept them awake. They had not the smallest desire to interfere in any way with those who had conscientious objections on that matter. In the face of criticism, however, it was absolutely necessary that lymph should be beyond suspicion.

Dr. F. T. BOND, secretary to the Jenner Society, said that

the opposition to vaccination mainly associated itself with defects of administration of the Vaccination Acts. He held strongly the opinion that by a thorough investigation of the defects of the machinery of vaccination legislation could be most safely promoted.

Dr. J. C. MCVAIL urged the importance of the revaccination of children before leaving school. When a child was approaching 12 years of age the duty should be impressed upon the parent of seeing that the child was protected against small-pox before entering further on his or her career. He ventured to think that the President of the Local Government Board, who had abolished rabies in this country, had a great opportunity of conferring an enormous boon on the country in connexion with an infinitely more important subject—namely, small-pox.

Mr. DEVITT, representing commerce, gave instances of the heavy loss which had fallen upon ship-owners owing to a single case of small-pox having occurred on board a ship.

Mr. E. DEBENHAM, representing the clothing, furnishing, and allied trades, presented a petition signed by firms employing about 30,000 persons in favour of revaccination.

Dr. ADLER, the Chief Rabbi, speaking of the strenuous efforts which were made to secure the revaccination of all Jewish children attending voluntary and board schools, said he was certain that no case of small-pox occurred among the children attending three board schools in the East-end, which had an aggregate of over 2000 names on the register. The managers secured the help of the public vaccinator who was good enough to attend twice a week at an institution near the schools. The confidence reposed by the parents in the managers and teachers was so great that they brought or sent their children in large numbers, so that at least 75 per cent. of scholars over eight years of age were vaccinated. In fact, so anxious were the parents that the children should be protected that in many cases they brought children below the age at which revaccination was deemed needful and begged that they should be vaccinated. He laid special stress upon the fact that it was of the utmost importance that children should be revaccinated while at school before they attained the age of 12 or 13 years.

Alderman MENLOVE, chairman of the Liverpool Health Committee, said that power should be given to health authorities to vaccinate or to revaccinate anyone who had come in contact with a case of small-pox.

Mr. R. BRUDENELL CARTER said he had been asked to say a few words on the question of cost in relation to the prevention of small-pox. They naturally looked to Government to protect the property as well as the persons of its subjects, and the property of the people of this country had been injuriously affected by small-pox epidemics in an amazing manner. If they took London alone, the expenditure of the Metropolitan Asylums Board in the recent epidemic was estimated to have been at least half a million sterling, that sum not including the expense to which the different boroughs of the metropolis were put for the conveyance away of the different cases within their limits, or the disinfection of the houses in which small-pox had occurred. The hospital ships on the Thames cost something like £15,000 a year. Yet this expenditure of money, large as it was, did not equal the loss which was inflicted on the various localities by the disturbance of trade and of the ordinary events of life which an epidemic of small-pox invariably caused. The Government ought to take into account not only individual loss but the great loss in national wealth due to disease.

Dr. T. D. ACLAND urged the necessity for a liberal supply of the glycerinated lymph.

Sir WILLIAM BROADBENT, Bart., K.C.V.O., said that he thought the difficulties of the conscientious objector would be lessened by pressure of public opinion as expressed by the great employers of labour.

Dr. J. G. GLOVER said that Mr. Barnardo had had under his care in Stepney between 6000 and 7000 children during the 18 months of the recent epidemic and that these children having been vaccinated, there had not been one case of small-pox among them.

Copies of the following declaration were handed to Mr. LONG:—

> Believing that in vaccination and revaccination we possess the best protection against epidemic small-pox, I should heartily welcome legislation making revaccination at school age obligatory on all but the children of conscientious objectors or those who may be for a time excused on the ground of ill-health.

The signatories included Sir Thomas Dyke Acland, Sir Thomas Barlow, Mr. T. J. Barnardo, Mr. H. Rider Haggard, Professor D. MacAlister, Sir William Turner, Sir John Williams, the head-masters of many large public schools, the head-mistresses of important public girls' schools, the heads or honorary secretaries of colleges for women, the Lord Mayors and mayors of a number of important cities and boroughs, the representatives of a number of large employers of labour and of many ship-owners and owners of lines of steamers, several firms of ship-builders, the chairman and secretary of Lloyd's Registry, City solicitors, and many others.

Mr. LONG said that it was unnecessary for him to refute either the allegations or the arguments which had been advanced by the speakers. No one, he need hardly say, in the office of the Local Government Board would attempt to dispute either the assertions which had been made in support of vaccination or the gravity which had been rightly attached to the successful performance of that operation throughout the country. At the Local Government Board they had a constant and growing experience of the advantages of vaccination; and the only wonder they felt at all was that it should be necessary at this period of the world's history for a great deputation so representative in character and gathering its members from all parts of the country to come there in order to support that which they, in that office at all events, believed ought to receive the unqualified support of every intelligent person. He hoped that that remark would not be misunderstood by those who did not believe in vaccination. He did not desire to say anything which would offend the susceptibilities of those who believed that vaccination was wrong; but he felt bound to say that the more he had studied the question the more difficult he found it to understand how anyone could refuse to give hearty support to that which he believed to be one of the greatest instruments of preventive medicine that had ever been given to the world. Germany had practically eliminated the disease altogether and the effect of vaccination in India was well worthy of study. It was a common remark often heard from people of a certain age who said that in their young days it was quite an every-day occurrence to meet men and women one after another in the daily avocations of life who were disfigured by small-pox, whereas now it was the exception. What was the reason? It was not a process of nature which had been going on of itself without any assistance from science. It was not an accident: but it was due to some cause. What was the cause? Those who did not believe in vaccination said that the proper remedy for small-pox was isolation. Isolation was, no doubt, an excellent thing, but could any man in his senses believe that if in this country nothing but a process of isolation had been adopted the remarkable change in the condition of the people which had occurred since the days when small-pox was a common disease would have been brought about? It was surely not unfair for the adherents of vaccination to believe that this remarkable and beneficent change in the health of the people was due to revaccination in spite of all the obstacles which in this country had been placed in its way. They must not expect him on that occasion to state in any definite terms what the intentions of the Government were. In the first place, it was not usual to do that on such occasions; and in the second place, even if it were usual so active were the opponents of vaccination that he thought it would be very undesirable to make them a present of the Government proposals beforehand, because then they would get themselves into line of battle much earlier than was desirable. He could not help regretting that a great society like the Imperial Vaccination League had not come into existence many years ago and become as active in the constituencies of the country as the Anti-Vaccination League had been. Such a society would have been able to render invaluable assistance to Parliamentary candidates who were pressed on that question by those who were hostile to vaccination and told harrowing tales of the suffering, death, and misery which had resulted from vaccination. He hoped that that deputation was evidence of the fact that they had put their hands to the plough and that they did not mean to turn back until the work was done. The strongest Government could not carry legislation in the teeth of strong public opposition; but he believed that the great majority of the country were with those who held the views of the deputation and that if the facts were made known and the evidence was only put before the people of the country there would be a much larger majority in favour of vaccination. If the vaccination laws were going to be amended so as to make them effective it was necessary that an influential body

like the Imperial Vaccination League should bring to bear upon the people the knowledge and experience of its members. The first and most important of the proposals made by the deputation was whether the existing authority should be continued. The history of our local government in England was a very remarkable one. Fresh powers had been created by Parliament and had been handed over to existing authorities who were not particularly adapted to the work of carrying them out. Could anything be more inconsistent with the proper functions of a board of guardians than that they should be charged with the general duty of vaccinating the people in their neighbourhood? What had vaccination against a terrible disease to do with the proper maintenance of the paupers? The guardians had done their best very often and very often the efficient administration of the Poor-law had been interfered with by the agitation got up in connexion with vaccination at the time of the election of the guardians. He believed that the proper line to adopt in reform of local government was that of centralising in the great central bodies of the country, as far as they could, those special parts of the government which had special application to the whole area and not special application to any parts of the area; therefore he inclined towards making the county councils and the borough councils the authorities in future. With regard to revaccination he agreed with the remark made by Dr. J. C. McVail and emphasised by him in a very interesting article which he had had the advantage of reading within the last day or two, that primary vaccination of itself was really almost a farce—to vaccinate the children and then to believe that everything had been done that was necessary in order to secure the proper effects of vaccination was almost a farce and was really almost a deception. It would be a very great advantage if a practicable scheme of revaccination during adolescence or later life could be devised. Statistics were widely circulated by the opponents of vaccination in which allegations were frequently made that people had died from small-pox who had been vaccinated, but in those statistics the period of lives at which these persons had been vaccinated was not stated, or whether they had ever been revaccinated, or whether it were not the fact that it was because they had only been vaccinated some 20 or 30 years before and had not been revaccinated that they had died from small-pox. Vaccination in infancy, unless it were repeated at proper intervals, was not a certain safeguard. Vaccination reduced the virulence of small-pox, lessened the risk of infection, and if it was repeated at proper intervals it afforded a great safeguard against the contraction of the disease. There were those who would still say that vaccination was no remedy, and that the attempt to spread vaccination was to do that which was wrong and antagonistic to the liberties and the privileges of the people. He stood aghast in the face of statements of that kind. He could not understand why it was that a certain section of the community took so strong a view about the dangers of vaccination. Recently he had read an article in THE LANCET[1] in which the hope was expressed that a Bill of a non-contentious nature dealing with vaccination might be introduced into Parliament. He was very doubtful whether the ingenuity, even of the Local Government Board, could devise a Bill which would be so regarded by the opponents of vaccination. With regard to the question of lymph, that was a very difficult question, and at present, although they had largely increased their vaccine establishment, it would be impossible to undertake to supply that lymph generally to the whole country. He agreed that if vaccination was to be made general the supply of lymph should be of the best possible description, but he thought that they should be satisfied that the commercial lymph was unsatisfactory before they attempted to embark on so large a business as the supply by the Government of lymph for general use. That was a question he preferred to reserve for more careful consideration, because, naturally, it would involve a discussion between the Board and the Treasury and was not one on which he could now say what his final view would be. He had tried to indicate in very general terms what his views were as Minister responsible there. He had not had any opportunity of consulting his colleagues, but he had tried to indicate what would be the general principles that would guide him in this matter. Of this the deputation might rest assured, that they would do nothing at the Local Government Board which would be calculated in any way to lessen what they believed to be one of the greatest benefits enjoyed by this country—the general adoption throughout the country of vaccination as a preventive against one of the most terrible of our diseases.

Sir JAMES CRICHTON BROWNE briefly thanked Mr. Long and the proceedings terminated.

[1] THE LANCET, Jan. 10th, 1903, p. 110.

Looking Back.

FROM

THE LANCET, *SATURDAY, JAN.* 22, 1825.

REVIEWS FROM THE WEST.

UNDER this title shall be noticed, from time to time, everything Medical coming within our reach, remarkable for stupidity or distinguished by excellence. Nothing destitute of one of these two qualities shall arrest our attention. Mediocrity only, therefore, shall escape our vigilance; because from this negative, neither-one-way-or-other, sort of thing, so prevalent at the present moment, there is no danger to be apprehended, or any advantage to be derived. This nondescript species of composition, in which the elements of good and evil are so happily blended that, like certain chemical compounds, every trace of the original constituents is lost in the neutral insipidity of the product, seems to us to be totally unworthy of observation. Our critical barometer admits of only two degrees—zero, and the boiling point; to one or other of these signs shall be referred whatever works we review; and on the same principle that we are told to read history, to be admonished by error and instructed by acts of prudence, we shall fearlessly expose absurdity and judiciously point out excellence for imitation. In no other form can we think that criticism may be rendered conducive to the interests of a science the professors of which should ever recollect, that, "to do good and to avoid evil" ought to be their motto, and the object of their lives.

The *Times* of Jan. 19th, 1903, has the following interesting excerpt from its issue of Jan. 19th, 1803:—

EXTERMINATION of the SMALL POX.

London, Jan. 10, 1803.

The invaluable Discovery of Dr JENNER, for the Extermination of the SMALL POX, having undergone the most rigorous investigation, and received the sanction of Parliament, a MEETING will be held at the London Tavern, Bishopsgate-street, on Wednesday, the 19th instant, at 12 o'clock, to consider of the best means of carrying the same into effect; when the company of every Gentleman disposed to concur in this laudable Undertaking is earnestly requested. The Chair will be taken by the LORD MAYOR, precisely at one o'clock.

William (Duke of Clarence)
Berkeley
Egremont
Darnley
Somerville
G. C. Berkeley, M.P.
J. W. Anderson, M.P.
William Wilberforce, M.P.
Henry Thornton, M.P.
Richard Carr Glyn, Ald.
George Hibbert, Ald.
William Leighton, Ald.
John Julius Angerstein
E. G. Boldero
Thomson Bonar
William Bentham
Henry Hoare
John Maitland
William Vaughan
Nathaniel Fent.
Richard Sharpe
Benjamin Travers
Joseph Travers
Timothy Brown
J. H. Tritton
Robert Cowie
John Gurney
Thomas Wilson
Robert Barnewall
Caesen Rhode
Jacob Wrench
Samuel Thorpe
John Nichols
Samuel Parker
Ebenezer Jonnston
James Bell
William Bell
Joseph Benwell
Henry Waymouth
Walter Farquhar, M.D.
J. C. Lettsom, M.D.
Thomas Denman, M.D.
Richard Croft, M.D.
Thomas Bradley, M.D.
Gilbert Blane, M.D.
Alexander Crichton, M.D.
William Hawes, M.D.
William Babington, M.D.
Robert Willan, M.D.
Richard Powell, M.D.
William Lister, M.D.
James Hamilton, M.D.
James Sims, M.D.
Alexander Marcet, M.D.
W. P. Dimsdale, M.D.
Samuel Pett, M.D.
Henry Cline
John Ring
John Abernethy
Astley Cooper
Edward Ford
John Pearson
John Griffiths
C. R. Aikin
John Addington
William Chamberlain
James Simpson
Joseph Fox
Charles Johnson
William Allen
George Johnson
J. Potts
John Christie
Joseph Lenier
John Buxton
Ives Hurry
Thomas Walker
E. L. McMurdo

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on Jan. 15th, Sir HENRY G. HOWSE, the President, being in the chair.

Mr. Clinton T. Dent was introduced and having made a declaration in the terms of the oath prescribed by the Charter of 1800 was admitted a member of the Court of Examiners.

The best thanks of the Council were given to Mr. Bolton Glanvill Corney for his gift to the museum of 16 skulls of members of the Melanesian, Malayo-Polynesian, and hybrid (Fijian) races.

The PRESIDENT reported the award of the Sir Gilbert Blane medal to Christopher Louis White Bunton, M.B., B.Ch. R.U.I., Surgeon R.N., H.M.S. *Forte*, 1901, and John Falconer Hall, M.B., C.M. Aberd., Staff-Surgeon R.N., H.M. Naval Brigade in North China, 1900.

A letter was read from Mr. Frederick Canton resigning his seat on the Board of Examiners in Dental Surgery.—The PRESIDENT stated that the vacancy thus occasioned would be filled at the ordinary meeting of the Council in March. (Applications for the post must be sent in before Feb. 7th.)

A letter was read from the Secretary of the University of Birmingham reporting the expiration on Jan. 1st, 1903, of the term of office of Sir Henry G. Howse on the court of governors of the university. The Council recommended Sir Henry G. Howse for re-election.

A letter was read fr m Mr. Reginald Harrison reporting his attendance as the delegate of the College at the Medical Congress at Cairo. The best thanks of the Council were given to Mr. Harrison for representing the College at the Congress.

A letter was read from the Foreign Office inclosing a copy of a despatch from Lord Cromer to Lord Lansdowne expressing the appreciation felt by the Khedive and the Egyptian authorities at the action taken by the College in sending Mr. Harrison to the Cairo Congress and to inspect the Cairo School of Medicine.

A letter was read from Dr. H. P. Keatinge, director of the Cairo School of Medicine, reporting that he had furnished Mr. Harrison with all the information in his power respecting the curriculum of the school, thanking the Council for the interest taken by it in the institution, and expressing the hope that the result of Mr. Harrison's investigations might lead to the recognition of its teaching.

THE PREVENTION OF CONSUMPTION AND OTHER FORMS OF TUBERCULOSIS.

RECOMMENDATIONS WITH REGARD TO PROPHYLAXIS.

AT a meeting of the council of the National Association for the Prevention of Consumption and other Forms of Tuberculosis held on Jan. 12th, Sir WILLIAM H. BROADBENT, Bart., K.C.V.O., being in the chair, the motions printed below were passed. The attention of the council having been called to the fact that notwithstanding the numerous notices against spitting which have been placed in various railway carriages, tramcars, and places of public resort, this disagreeable and dangerous habit still continues, and also in view of the fact that spitting on the cars of certain tramway companies and in covered places of public resort in the county of Glamorgan has already been made a penal offence, it was decided that some further action was called for. The following motion was therefore proposed by Mr. MALCOLM A. MORRIS, seconded by Dr. L. A. WEATHERLY supported by Dr. ARTHUR RANSOME, and carried unanimously:—

That spitting on the floors of public buildings, on platforms, corridors, staircases, and public carriages or passenger boats, or in any covered place or public resort, should be forbidden by law.

The council at the same meeting also resolved:—

That the council of the National Association for the Prevention of Consumption, having read the report of the Tuberculous Committee of the Medico-Psychological Association of Great Britain, are of opinion that the suggestions therein expressed are most valuable, and they urge the Commissioners in Lunacy to do their utmost to get the committees of the county and borough asylums to carry these suggestions into effect.

The attention of the council has also been called to the report of a departmental committee on the ventilation of factories and workshops, 1902 (Blue-book, Cd. 1302). The chief recommendation in the report is (p. 5) that "such a standard of ventilation should be prescribed for all classes of factories and workshops not otherwise dealt with. The proportion of carbonic acid in the air at about the breathing level and away from the immediate influence of any special source of contamination ..... shall not ..... rise during daylight or after dark when only electric light is used beyond 12 volumes of carbonic acid per 10,000 of air, and that when gas or oil is used for lighting the proportion shall not exceed 20 volumes after dark or before the first hour of daylight." The council of the association understands that, in accordance with the views of a previous committee, an Act was passed in 1897 fixing the standard of nine volumes of carbonic acid in all humidified cotton-cloth factories and that this Act had been very successful in improving the condition of the workers in these factories.

The council therefore beg to express their opinion that the newly suggested standard of ventilation should not be adopted by the Government, as it would probably prove detrimental to the public health and would tend to increase the prevalence of tuberculous diseases.

SWANSEA.

A meeting convened by the Mayor of Swansea and Sir John Llewelyn (president of the Swansea Charity Organisation Society) was held at the town hall, Swansea, on Dec. 22nd, 1902, to consider the question of establishing a sanatorium for consumptive patients at Swansea.—The Mayor referred to the recent formation of a Swansea branch of the National Association for the Prevention of Consumption and other Forms of Tuberculosis and said that there were two alternatives before them—namely, whether they would apply to the county council to erect a sanatorium for that district or would themselves endeavour to raise public subscriptions. He thought that there was a general feeling that the provision should fall on the county council.—Sir John Llewelyn said that in his opinion they should go to a larger area than the borough of Swansea for the necessary capital if they depended upon voluntary subscriptions.—Mr. J. A. Rawlings, M.R.C.S. Eng., suggested that they should establish a sanatorium for consumptives in connexion with, or as a wing of, the convalescent home now being built in connexion with the Swansea Hospital. He thought that the Swansea corporation might be willing to contribute £1000 towards such a scheme. The disease would not be infectious in a proper sanatorium.—Councillor R. Dommett said that the Swansea Trades Council was strongly of opinion that the proposed institution should be supported by the corporation and he proposed a motion as follows:—

That this meeting is of opinion that a convalescent home for consumptive cures should be provided by the Swansea corporation and maintained out of the rates under the powers conferred by the Public Health Act, 1875.

Sir John Llewelyn seconded and the motion was adopted.—A deputation to wait on the corporation was appointed from amongst those present.—In reference to this aspect of the matter it may be stated that the corporation has for years refused to build a permanent hospital for the isolation of cases of infectious disease although repeatedly urged to do so by the medical officer of health, Mr. Ebenezer Davies, and although the buildings which have served the town during the recent epidemic of small-pox are anything but creditable, so that it will be interesting to see what action will be taken with regard to this latest proposal.

CUMBERLAND.

The work of providing a tuberculosis sanatorium for the county of Cumberland is being actively carried on and the executive committee has issued a public appeal which is signed by the Bishop of Carlisle as president, as well as by the honorary treasurer and secretary. In this appeal the committee states that it has collected funds and purchased what is pronounced by experts to be one of the most suitable sites in England, on the southern flank of Blencathra. Sheltered from winds, facing the sun, with a good water-supply and exhilarating air, it is at the same time centrally situated and reached easily from west or east. The committee has also arranged for the planting of shelter-belts of fir and larch and for the converting of the adjacent farmhouse into an administrative building with dining-hall attached. From £3000 to £4000 must yet be raised before the erection of the sanatorium can be undertaken. The actual inclusive cost of each patient per week

will be 30s. The committee asks young and old, rich and poor, to coöperate in this work of mercy. Contributions should be sent to the treasurer, Mr. W. I. R. Crowder, jun., of 4, Portland-square, Carlisle.

BRISTOL.

At a meeting of the Bristol health committee held at the council house on Jan. 6th the medical officer of health (Dr. D. S. Davies) stated that he was at present engaged in the preparation of a report relative to a letter from the guardians on the treatment of consumption. Any notification of this disease that might be secured would be voluntary, as the Government was not prepared to assent to the inclusion of any form of tuberculosis in a compulsory notification scheme.—The Chairman (Mr. F. G. Barnet) said that at the council meeting recently a resolution was unanimously adopted asking the committee to report on the subject of consumption hospitals and notification. He thought that if Dr. Davies reported on the size and general upkeep of such a hospital as Bristol would require the report could be sent to each member of the committee and they could ask the board of guardians to meet them in committee and see what could be done.—Mr. Pembery said that the council had voted a large sum to the Winsley sanatorium and so much a year for the allocation to the city of several beds.—Mr. Pope replied that the accommodation at Winsley would go but a little way towards meeting Bristol's need.—The medical officer was eventually asked to report as the chairman had suggested.

AUSTRIA.

A public meeting was held in Vienna on Jan. 5th for the purpose of forming an anti-tuberculosis union in Austria. Count Lützow was elected president and nearly £5000 were subscribed.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8487 births and 5072 deaths were registered during the week ending Jan. 17th. The annual rate of mortality in these towns, which had been 16·9, 20·0, and 18·5 per 1000 in the three preceding weeks, declined again last week to 17·5 per 1000. In London the death-rate was 17·5 per 1000, and was equal to the average rate in the 75 other large towns. The lowest death-rates in these towns were 5·3 in Hornsey, 5·7 in King's Norton, 8·1 in Tottenham, 9·7 in Barrow-in-Furness, 9·9 in Bournemouth, 10·0 in Rotherham, 10·1 in Burton-on-Trent, and 11·0 in Warrington; the highest rates were 21·7 in Birmingham, 21·8 in Wigan, 22·3 in Stockport, 22·4 in Swansea, 23·5 in Ipswich, 23·7 in Norwich, 24·3 in West Bromwich, 24·8 in Tynemouth, and 31·8 in Bootle. The 5072 deaths in these towns last week included 450 which were referred to the principal infectious diseases, against 494, 602, and 504 in the three preceding weeks; of these 450 deaths 130 resulted from measles, 105 from whooping-cough, 69 from diphtheria, 57 from diarrhœa, 52 from scarlet fever, 31 from "fever" (principally enteric), and six from small-pox. No death from any of these diseases was registered last week in Southampton, Reading, King's Norton, Smethwick, Aston Manor, Wallasey, Rochdale, Middlesbrough, or Rhondda; in the other towns these principal infectious diseases caused the highest death-rates in Hanley, Walsall, West Bromwich, Stockport, Manchester, Salford, Preston, Tynemouth, and Swansea. The greatest proportional mortality from measles occurred in Wolverhampton, West Bromwich, Wigan, Manchester, Salford, Hull, Tynemouth, Newport (Mon.), and Swansea; from scarlet fever in West Bromwich and St. Helens; from diphtheria in Coventry, Stockport, and Bury; from whooping-cough in Hanley, Stockport, and Preston; and from diarrhœa in Walsall, Burnley, and Swansea. The mortality from "fever" showed no marked excess in any of the large towns. The six fatal cases of small-pox registered in these towns last week belonged respectively to London, Hanley, Liverpool, Bootle, Manchester, and Hudder-field. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had declined from 21 to 10 on the four preceding Saturdays, had further decreased to five on Saturday, Jan. 17th; two new cases were admitted during last week, against one and four in the two preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital at the end of the week was 2128, against 2528, 2378, and 2219 at the end of the three preceding weeks; 195 new cases were admitted during the week, against 205, 214, and 223 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 343, 415, and 354 in the three preceding weeks, further declined last week to 310, and were 249 below the corrected average number. Influenza was returned as the primary cause of death in 34 cases last week, against 28, 37, and 39 in the three preceding weeks. The causes of 75, or 1·5 per cent., of the deaths in the 76 large towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Croydon, West Ham, Leicester, Nottingham, Cardiff, and 40 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Bootle, St. Helens, Sheffield, Middlesbrough, Sunderland, South Shields, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 21·3, 21·6, and 22·6 per 1000 in the three preceding weeks, further rose to 23·4 per 1000 during the week ending Jan. 17th, and was 5·9 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 17·8 in Edinburgh and 19·8 in Dundee to 25·3 in Glasgow and 29·8 in Aberdeen. The 766 deaths in these towns included 32 which were referred to whooping cough, 18 to diarrhœa, 12 to measles, six to diphtheria, five to scarlet fever, and three to "fever," but not one to small-pox. In all 76 deaths resulted from these principal infectious diseases last week, against 59, 77, and 78 in the three preceding weeks. These 76 deaths were equal to an annual rate of 2·3 per 1000, which was 0·7 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 33 and 24 in the two preceding weeks, rose again last week to 32, of which 23 occurred in Glasgow, three in Edinburgh, three in Leith, and two in Aberdeen. The deaths from diarrhœa, which had been 14 and 22 in the two preceding weeks, declined again to 18 last week, and included six in Glasgow, four in Dundee, two in Edinburgh, two in Aberdeen, and two in Greenock. The fatal cases of measles, which had risen from five to 15 in the four preceding weeks, decreased again last week to 12, of which five were registered in Edinburgh, five in Aberdeen, and two in Leith. The deaths from diphtheria, which had been 13 and seven in the two preceding weeks, further declined to six last week, and included five in Glasgow. The fatal cases of scarlet fever, which had been three in each of the three preceding weeks, increased last week to five, of which two occurred in Glasgow, where two of the three deaths from "fever" also were registered. The deaths referred to diseases of the respiratory organs in these towns, which had been 193, 158, and 152 in the three preceding weeks, rose again last week to 174, but were slightly below the number in the corresponding period of last year. The causes of 27, or nearly 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 24·6, 29·4, and 26·8 per 1000 in the three preceding weeks, rose again to 30·0 per 1000 during the week ending Jan. 17th. During the past four weeks the death-rate has averaged 27·7 per 1000, the rates during the same period being 18·5 in London and 19·2 in Edinburgh. The 218 deaths of persons belonging to Dublin registered during the week under notice showed an increase of 23 over the number in the preceding week, and included 16 which were referred to the principal infectious diseases, against 21, 23, and 14 in the three preceding weeks; of these six resulted from "fever," four from diphtheria, three from measles, two from whooping-cough, and one from scarlet fever, but not one from either small-pox or diarrhœa. These 16 deaths were equal to an annual rate of 2·2 per 1000, the death-rates last week from the same diseases being 1·5 in London and 1·9 in Edinburgh. The deaths referred to different forms of "fever," which had been four, two, and two in the three preceding weeks, rose again last week to six. The fatal cases of diphtheria, which had been three,

four, and three in the three preceding weeks, increased again to four last week. The deaths from measles, which had been seven, nine, and two in the three preceding weeks, rose again last week to three. The 218 deaths in Dublin last week included 38 of children under one year of age and 67 of persons aged 60 years and upwards; the deaths of infants were slightly fewer than those recorded in the preceding week, while those of elderly persons showed a considerable excess. 12 inquest cases and seven deaths from violence were registered, and 87, or n40 per cent., of the deaths occurred in public institutions. The causes of 11, or more than 5 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Sidney H. Carter retires on retired pay. Dated Jan. 17th, 1903.

Lieutenant-Colonel D. F. Franklin has embarked for India. Lieutenant-Colonel W. Dick is ordered to proceed to the Straits Settlements. Major J. B. Wilson joins at Woolwich.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions among the officers of the Indian Medical Service made by the Government of India:—To be Surgeon-General, Bombay Establishment: Colonel William McConaghy (dated Oct. 30th, 1902). To be Colonel, Bengal Establishment: Lieutenant-Colonel Henry Hamilton, retired. Dated Oct. 1st, 1902. Majors to be Lieutenant-Colonels (dated Sept. 30th, 1902), Bengal Establishment: Albert William Denis Leahy and Richard Rose Weir. Madras Establishment: Robert Evans Stuart Davis and William Henry Neilson. Bombay Establishment: William Henry Burke and John Crimmin, C.I.E., V.C.

The King has approved of the retirement from the service of the undermentioned officers:—Bengal Establishment: Colonel Geoffrey Craythorne Hall (dated Nov. 1st, 1902); Lieutenant-Colonel Joshua Duke (dated Nov. 1st, 1902); and Lieutenant-Colonel William Edwin Griffiths (dated Jan. 6th, 1903). Madras Establishment: Lieutenant-Colonel Henry FitzLawrence Plunkett French Esmonde-White (dated Dec. 28th, 1902). Bombay Establishment: Surgeon-General George Bainbridge (dated Oct. 30th, 1903) and Lieutenant-Colonel Henry Pruce Jervis (dated Nov. 27th, 1903).

The India Office publishes the following list of candidates for the Indian Medical Service who were successful at the competitive examinations held in London on Jan. 17th and following days:—

	Marks.		Marks.
C. S. Parker, M.B. Lond. ...	3413	E. C. Taylor, M.B., B.Ch. Cantab.	2890
F. N. White, M.B. Lond. ...	3068	D. P. Goil, M.B., B.Ch. Edin.	2865
T. C. Rutherfoord, M.B., B.S. Durh.	3037	H. C. Keates, M.B., B.S. Lond.	2860
D. Heron, M.B., B.Ch. Edin.	3018	R. A. Needham, M.B., B.S. Viet.	2827
L. Reynolds, B.Ch. Cantab.	2987	J. Kirkwood, M.B., B.Ch. Edin.	2812
H. H. Broome, M.B., B.Ch. Edin.	2940	A. Whitmore, M.B., B.Ch. Cantab.	2782
C. G. Seymour, M.R.C.S., L.R.C.P. Lond.	2930		

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Ayrshire and Galloway: Surgeon-Lieutenant T. Harper to be Surgeon-Captain. Dated Jan. 17th, 1903. 1st Cheshire and Carnarvonshire: Surgeon-Lieutenant T. G. Lusk to be Surgeon-Captain. Dated Jan. 17th, 1903.

Submarine Miners: The Tyne Division: Surgeon-Captain W. H. Brown to be Surgeon-Major. Dated Jan. 17th, 1903.

Rifle: 3rd (The Blythswood) Volunteer Battalion the Highland Light Infantry: Peter Mackellar Dewar to be Surgeon-Lieutenant. Dated Jan. 17th, 1902. 1st Dumbartonshire: The undermentioned officer resigns his commission:—Surgeon-Captain T. J. Burton. Dated Jan. 17th, 1903.

THE UNION JACK CLUB.

A scheme for founding a club for the United Services is, we are glad to say, to be carried out and a building is shortly to be erected at a cost of £50,000 in the vicinity of Waterloo Station to act as a club for the use of our soldiers and sailors. The idea is to provide a building available for all belonging to the Imperial Forces where they can obtain comfortable beds, good food, and wholesome recreation at moderate rates. This strikes us as a very good idea and we do not think that a more suitable or better site than that proposed could have been chosen for the purpose. Apart from the obvious hygienic and economical advantages offered by such an institution everything should be done nowadays to render the public services attractive to intending soldiers and sailors. The plans of the building allow for 400 bedrooms, a restaurant, smoking-rooms, billiard-rooms, reading-room, and other club accommodation. Although the club is in no way started under official auspices it has the warm approval of the Admiralty and War Office.

Correspondence.

"Audi alteram partem."

THE RISE OF BLOOD PRESSURE IN LATER LIFE.

To the Editors of THE LANCET.

SIRS,—I much regret that I was unable to be present at the reading and discussion of Professor T. Clifford Allbutt's paper brought before the Royal Medical and Chirurgical Society, which is reported in THE LANCET of Jan. 17th, p. 170. There are one or two points on which with your permission I should like to comment. Doubtless Professor Allbutt's remark with regard to fatalism in medicine begotten in the post-mortem room is of historic value, but it has ceased to be applicable for many years, and I think even at the present time there are valuable lessons to be learned in that gloomy but interesting chamber, and especially in two directions—viz., (1) lessons of humility as well as greater exactness in diagnosis which every clinical physician who attends there must have learned and which those still in student life would do well to take more to heart; and (2) a useful examination into what I may in brief call "collateral pathology," an examination into all the compensatory, reparative, and substitution processes that may be discerned amidst the "wreckage" in the dead body, will teach us much and will enable us to appreciate those processes of repair and possibilities of compensation which in clinical medicine enter so largely into both diagnosis and prognosis. I regret, therefore, that Professor Allbutt of all men should say anything in discouragement of post-mortem work.

Whilst generally agreeing with the views so interestingly put by Professor Allbutt on the conditions affecting blood pressure, there are some points with regard to its mechanism upon which I should have ventured to remark. Professor Allbutt tells us that the two antecedent conditions upon which blood pressure must depend (ventricular force and valve competency being understood) are diminution of the calibre of the vessels and increased viscosity of the blood. Whilst he, I think rightly, expresses doubt as to narrowing of the vessels being present with sufficient uniformity in arterial degeneration to cause rise in blood pressure and consequent hypertrophy of heart, he, on the other hand, maintains a tantalising silence with regard to "viscosity of blood," as to the nature of which one would much have desired information.

Professor Allbutt only makes a passing reference to loss of elasticity in the vessels as concerned in the altered conditions of circulation—viz.: that it is not proved to have any effect with regard to their capacity. Now it seems to me that loss of elasticity in degenerate vessels is a most important deprivation which increases the burden of the heart in maintaining circulation. The other factor which may precede, and often attends, degeneration is arterial contraction.

We cannot, of course, speak of vessel elasticity as a force in aid of circulation, but it is a most important factor which by perpetuating, in conjunction with competent aortic valves, the ventricular force helps to maintain the blood current. Deprived of elasticity, as in the leathery vessels spoken of by Professor Allbutt, the vessels give a dead resistance to the blood movement which causes the waste of much cardiac force and tends to a low blood pressure and at the same time to cardiac hypertrophy. Arterial contraction is, in morbid degrees with which we are now alone concerned, also an opposing force to the blood current. Its full consideration would be a thesis of itself. I would regard it as in part a reaction to the toxic influence

of that "viscosity of blood" spoken of by Professor Allbutt, which I take to be blood more or less charged with products of imperfect metabolism. But arterial contraction has also a more common cause, probably in the central nervous system. It is an intermittent condition that may long precede any definite cardio-vascular changes. I doubt whether one meets with raised blood pressure in association with arterio-sclerosis which is not due to associated arterial contraction and which cannot be relieved temporarily by a dose of a vaso-dilator drug or modified more permanently by other medicinal and dietetic treatment.

I am, Sirs, yours faithfully,

Wimpole-street, Jan. 17th, 1903. R. DOUGLAS POWELL.

RIGHT-HANDEDNESS AND LEFT-BRAINEDNESS.

To the Editors of THE LANCET.

SIRS,—I have no objections to make to Dr. James More's communication on Right-handedness and Left-brainedness in THE LANCET of Jan. 17th, p. 200, except that it does not touch the point which most interests me. It is true that my letter in THE LANCET of Dec. 13th, 1902, p. 1658, like all the others, was headed "Right-handedness and Left-brainedness," but neither of these subjects did I discuss; I did not, indeed, offer any speculations at all but dealt only with facts and common knowledge. I maintained that in a large number of movements one could use only one hand or the other in a given way and therefore there was no such thing as ambidexterity in the sense in which many persons use the term. Dr. More only alludes to the subject when he speaks of the weaver and calls him ambidextrous but does not inform us how the hands were used. I apprehend that, as usual, the two hands were employed for a common purpose and not that they were used in the same manner—which would have been purposeless—but mutually aiding each other by their own special action. I have no objection in using the term in this sense, that is, that the weaver was dextrous or skilled with both hands and not that he was doubly right-handed, although it is not usually employed in this sense, for then a violin-player would be the best example I know of an ambidextrous man, where each hand is educated for its own special movement.

I do not deny that when a person has lost his right arm he can learn to write in the usual manner with his left, but he does so only after a long time and effort as he is bringing into use quite another set of muscular movements. In the case of the screw, a left-handed workman acts with great disadvantage in having to use pronators for supinators, &c. Many children have a great difficulty in using different sets of muscles in playing the scale. They easily enough accomplish it with the right hand, beginning with the thumb and proceeding outwards, but to accompany this with the left beginning with the little finger and proceeding inwards is often a difficult task. This in one sense is being ambidextrous.

I think that ambidexterity is not intended to apply to the case where the left hand copies the right as happens in the left handed writer, nor does it apply to the pianoforte player, nor do I think it is ever used for the person who is skilled in the use of both hands for different purposes, as the weaver or violin-player. I think that it is generally understood to mean the case where a person can use equally well his left hand and his right for the same object. If so, he must employ the corresponding muscles with their similar nerve supply; the movements are necessarily different although the object to be obtained is the same. An ambidextrous surgeon obtains an advantage in this by not moving his position; so does the ambidextrous waiter who carves the fowl without turning it round, and that the left-handed bowler goes out of the usual course is well known to the batsman. Would it be an advantage to educate the legs equally, so that he could mount a horse as well on its right as on its left side?

I am, Sirs, yours faithfully,

Jan. 20th, 1903. SAMUEL WILKS.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.

To the Editors of THE LANCET.

SIRS,—I was much interested in reading the paper upon Congenital Hypertrophic Stenosis of the Pylorus, communicated by Dr. E. Cautley and Mr. C. T. Dent at a recent meeting of the Royal Medical and Chirurgical Society.[1] In the discussion which followed the majority of the speakers, in referring to the etiology of this remarkable affection, favoured the view that the increased muscular tissue encircling the pylorus was due to spasm or abnormal innervation, while others considered the condition to be one of primary hyperplasia and not of hypertrophy. For my own part I believe the arguments advanced by Dr. Cautley and Mr. Dent in favour of a primary hyperplasia to be convincing. But there still remains the question, What is the cause of the primary hyperplasia?

My object in writing is to make a suggestion. In many of the mammalia the pylorus is provided with an excessive thickening of its muscular wall for reasons essential to the welfare of the animal and which need not now be discussed. This muscular pyloric collar is well marked in the Bruta and in Vol. III. of the "Anatomy of the Vertebrates," by the late Professor Owen, there is on p. 448 a drawing of the stomach of the great ant-eater which resembles so closely the condition found in so-called congenital hypertrophic stenosis of the pylorus that I venture to suggest, while the etiology of this condition is "still in the nebulous regions of hypothesis," that the primary hyperplasia may be due to a reversion to an original type.

I am, Sirs, yours faithfully,

Liverpool, Jan. 15th, 1903. R. W. MURRAY.

HOSPITAL FINANCE.

To the Editors of THE LANCET.

SIRS,—The Local Government Board states that it is advised that phthisis is a disease for which hospital provision may be provided at the cost of the rates; there are thus three common diseases—phthisis, enteric fever, and diphtheria—for which provision is made and of which cases, if admitted into general hospitals, are admitted to the exclusion of cases for which no provision is made, unless, that is, the infectious cases are paid for; nevertheless, these cases are admitted into general hospitals and in considerable number, and that for three reasons: (1) they are too ill to be sent away; (2) they cannot be diagnosed with certainty and therefore cannot be certified; and (3) the physicians take much interest in such cases. It is stated that the Metropolitan Asylums Board, though ready enough to pay for cases when its own hospitals are full, is not willing at other times to do so, but it is difficult to see why the Board should refuse (if indeed it does refuse) to pay at any time for cases under No. 1 or under No. 2, for patients are not benefited by a long ambulance ride. The financial importance of the matter will be seen from an example: in one general hospital during one year among 3138 admissions there were 63 cases of phthisis, 90 cases of enteric fever, and 65 cases of diphtheria; under the head of in-patient payments there is £293, most, if not all of which, must be presumed to come from the Asylums Board; but if all the infectious cases had been paid for the amount should have been about £1097—a valuable set-off against the £2650 required for rates and taxes.

I am, Sirs, yours faithfully,

Devonshire-place, W., Jan. 16th, 1903. WALTER EDMUNDS.

THE NOMENCLATURE OF MALARIA.

To the Editors of THE LANCET.

SIRS,—It will interest Lieutenant-Colonel D. Bruce to know that at the malarial conference held at Nagpur, C. P., Christmas, 1901, resolutions similar in spirit to his proposals were passed by the members there present. The first resolution was to the effect that the classification of malarial fevers should be based where possible on a microscopical differentiation of the parasites. The limitation "where possible" was agreed to by some, including myself, with reluctance, although we fully realised that the doctor babu or hospital assistant, or even the village chowkidar, was responsible for a considerable portion of the figures that make up the Serbonian bog of Indian "fever" statistics. The conference was further almost unanimous that the term "malarial cachexia" should be reintroduced into the classification and a resolution to that effect was, I believe, forwarded to those responsible for the present nomenclature of ague or remittent fever. Lieutenant S. R. Christophers, I.M.S.,

[1] THE LANCET, Dec. 20th, 1902, p. 1679.

and myself while in Calcutta on the Royal Society's Malaria Commission examined 80 such cases of malarial cachexia, and in none of these did we find parasites, pigmented leucocytes, or an increase of the large mononuclear leucocytes. Post mortem there was pigment in the organs but again no parasites. It can serve no useful purpose to classify such cases with those in which there is an active infection with parasites in the blood. Those who are responsible for fever statistics, civil and military, have at present no option left them. They would as a whole, I think, welcome a change which would give to the figures a more definite meaning than they now bear.

I am, Sirs, yours faithfully,

J. W. W. STEPHENS,

Jan. 17th, 1903. Lecturer, Liverpool School of Tropical Medicine.

WEATHER AND SMALL-POX.

To the Editors of THE LANCET.

SIRS,—Thinking that the subjoined fact taken from Mr. William Digby's lately published work, "Natural Law in Terrestrial Phenomena" (William Hutchinson and Co.), may interest your readers I venture to send it to you. The above author has given a full and remarkable account of Mr. Hugh Clements's investigations on "weather forecasting" for many years past, and whilst treating of lunar cycles makes the following statement: "The next lunar cycle in order is that of 130 years. This cycle contains the lunar node cycle of 18·6 years just seven times, and is a multiple of the 10 and 13 years' lunar cycles. *The weather* of 1902 and of 1772 is so similar that there were *small-pox epidemics* in both years" (p. 321).

I am, Sirs, yours faithfully,

Jan. 15th, 1903. ALFRED HAVILAND.

A DISCLAIMER.

To the Editors of THE LANCET.

SIRS,—Some weeks since I received a book of testimonials relating to a product known as "odol," and I was astounded to see that one of them purported to have been given by me. I at once wrote to the proprietors pointing out that I had never given the testimonial in question, nor, in fact, expressed any opinion of my own about their product, and requesting that it should at once be cancelled. I received in reply a courteous letter acknowledging that I had never given a testimonial or authorised the use of my name in connexion therewith and promising to take steps to prevent its further publication.

In a copy of the book which reached me from the office last night the testimonial again appears, the proprietors apparently considering that I ought to be satisfied with a tiny "erratum" in a corner of the last page. In order to clear myself of any complicity in the matter I trust that you will allow me to repudiate all responsibility in connexion with this unauthorised use of my name, an abuse which has drawn upon me the notice of the Censors of the Royal College of Physicians of London. It is within my knowledge that at least one other testimonial therein contained has also been published without authority.

I am, Sirs, yours faithfully,

ALFRED S. GUBB, M.D. Paris.

Gower-street, W.C., Jan. 17th, 1903.

*** The proprietors of "odol" will, we trust, see the extreme impropriety of the conduct imputed to them and will take steps to remedy the mischief and to obviate its recurrence.—ED. L.

THE HUNTERIAN MUSEUM.

To the Editors of THE LANCET.

SIRS,—I would like to invite the attention of the museum committee to the growing practice of holding tutorial classes in the Hunterian Museum, a practice which makes almost impossible the study and research for which such a museum is intended. Sometimes I notice that the instruction, or rather coaching, has no reference to the specimens, and the museum thus becomes a class-room for the unattached crammer. As the various medical schools are equipped with museums for the purpose of elementary instruction I would ask that the Hunterian Museum be reserved for silent study only.

I am, Sirs, yours faithfully,

Jan. 17th, 1903. M.D. LOND., F.R.C.S.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Great Coronation Durbar: some of the Medical and Sanitary Arrangements.—The Plague Mortality.

IT is no small thing to make medical and sanitary arrangements for a camp containing 150,000 people and covering an area of nearly 40 square miles. Practically the whole of this vast undertaking is in the hands of a special staff, with Colonel C. J. Bamber, I.M.S., as administrative sanitary officer; Colonel H. B. Thornhill, I.S.C., as executive sanitary officer; Major F. Wyville Thomson, I.M.S., as chief assistant administrative officer; and Captain C. H. James, I.M.S., as special plague officer. The numerous camps, including the military, are grouped into six sanitary circles, each with its sanitary inspector and large staff of sweepers. There is a medical officer in charge of each camp; a hospital tent with staff has also been arranged for each camp. For infectious diseases, including plague, there are four segregation hospitals. For ordinary illness provision is made for treating cases in their own tents by the medical officer in charge, but if serious there is the Civil Hospital in the city. For natives there is a hospital of 50 beds in addition to the camp tent hospitals which also act as outdoor dispensaries. Those are very briefly the medical arrangements. The water-supply is partly from the water-works of the city and partly from wells. The latter have been utilised because many natives will not use pipe water. The chief supply has been distributed from the water-works in iron pipes. This has amounted to nearly 2,000,000 gallons a day—about double the ordinary supply. Running through the huge camp is a canal from the river Jumna which has been largely availed of for the purposes of watering the roads. The water from the works is pumped up to a reservoir on the "ridge," from which it is distributed throughout the camp at a fairly good pressure, standposts being very numerous. The water supplied for drinking is, I am told, of satisfactory purity. The wells have all been cleaned out and treated with permanganate of potash and each well has a guard of two men to prevent its being contaminated. Bathing, except where special arrangements are made in tents, has to be done in the Jumna or canal and the washing of clothes is only permitted in the river. The excreta are removed from the tents to iron receptacles, one of which is supplied for every 50 persons. The receptacles are carted some distance off and the night-soil is deposited in trenches. This is the general rule but some of the camps have arranged for trenching close at hand. Latrines are provided for servants and public urinals, consisting of a mat-screen surrounding a heap of sawdust or pulverised dry earth, are freely distributed. These latter have been found inoffensive, but the material requires to be stirred up from time to time. Waste water and other refuse from the kitchens are disposed of in absorption pits, consisting of holes dug in the ground and filled with broken bricks, and bath water from tents is thrown on grass plots or flower beds. It is not the individual details which are of interest but the vastness of the collective preparations and up to the present (Jan. 2nd) all the arrangements have worked exceedingly well, but the strain on the staff during the present busy week is tremendous.

I regret to have to record the death from appendicitis of Dr. E. C. Pettifer, one of the special plague medical officers in Calcutta. He formerly practised in Essex, but since 1897 has been doing plague work in India.

The mortality from plague throughout India continues to rise. For the week ending Dec. 20th 14,203 deaths are recorded, compared with 13,415 in the preceding seven days and 9198 in the corresponding week last year. The Bombay Presidency returns 7056 deaths; United Provinces, 1639; the Punjab, 1734; Mysore State, 871; Hyderabad State, 641; Madras Presidency, 478; Berar, 316; Bombay City, 130; Karachi, 16; and Calcutta, 22. There is an increase in Madras, Bengal, and United Provinces, but reduced numbers are returned for Bombay and the Punjab. The epidemic, however, is spreading. Plague has been officially declared at Jubbulpore and also for the first time in Lucknow. In several important cities it is developing—viz., in Benares, Allahabad, and Meerut. Inoculation for plague in the Punjab is to be recommenced during the second week in January at those places where the natives show a disposition to take advantage of it. Although there

were statements a short time ago that plague had broken out in Delhi there is no available information that it has as yet developed to any serious extent. There has not been any anxiety about the camp because even if introduced there it is not at all likely to spread. We shall probably hear of it again in the city before long.

The honours bestowed on Major Ross by a foreign Government have been noticed by the press in India and comment is made upon the absence of any recognition while on service in India. It is also recalled that Major Freyer and Colonel Keegan who have so distinguished themselves on the surgery of the bladder, more especially for stone, likewise passed out of the service without notice.

Jan. 2nd.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Cancer Investigation.

THE investigation into the origin and the cure of cancer is, thanks to the munificence of Mr. T. Sutton Timmis, to become an important branch of local scientific pursuit. That gentleman has vested in trustees a sum of £10,000 to initiate systematic research, which will be carried out at the Liverpool Royal Infirmary (according to the wish of Mr. Timmis, who is the President of the Royal Infirmary) and the new laboratories of experimental medicine at University College. The trustees of the fund are Mr. H. Wade Deacon and Mr. Henry Timmis. The committee which will carry out all the scientific arrangements consists of Dr. James Barr, Dr. William Carter, Mr. F. T. Paul, Professor Rubert W. Boyce, F.R.S., Professor C. S. Sherrington, F.R.S., together with the senior physician and the senior surgeon of the Royal Infirmary for the time being as members *ex-officio*.

Small-pox in Liverpool and its Neighbourhood.

The report of the medical officer of health of Liverpool showed that during the week ending Jan. 10th there were under treatment in the city hospitals 245 cases of small-pox and that 59 cases had been reported during the week, as against 48 in the previous week. There were six fatal cases during the week. During the current week, I am informed, there is a slight diminution in the number of fresh cases notified. The three cases of small-pox which occurred at St. Helens on Jan. 17th have been closely followed by one at the other side of the borough—viz., Thatto Heath. A collier working at the Sutton Heath Colliery was found on the 19th to be suffering from the disease in an advanced stage. This makes the eleventh case in St. Helens district. Two of the earlier patients will be discharged from hospital this week.

Memorial to the late Chairman of the David Lewis Northern Hospital.

A series of beautiful pictures illustrating sacred subjects, which has been placed in the reredos of the chapel in the David Lewis Northern Hospital in memory of the late Mr. J. E. Sheppard, for 16 years chairman of the hospital, was unveiled on Jan. 8th in the presence of a distinguished company References were made to the many excellent qualities of the deceased gentleman. The memorial has been provided by the committee, medical staff, and friends of the hospital.

Liverpool Country Hospital for Chronic Diseases of Children.

An interesting entertainment, arranged by the Misses Holt of Alexandra Drive, took place on the evening of Dec. 30th, 1902, at the Church Hall, Ullet-road, when an excellent dramatic recital was given by Mr. John Harwood of Manchester in aid of the Country Hospital for Chronic Diseases of Children, now in course of erection at Heswall. Mr. R. D. Holt, the father of the Liberal candidate for the Parliamentary vacancy in the West Derby division of Liverpool, presided over a large and appreciative audience. At the close of the entertainment "free-will offerings" were invited, to which there was a generous response, and a pretty feature on the occasion was the collection by 12 young children each wearing a favour of pale blue ribbon and white heather. Miss E. G. Holt and Mr. Andrew Gibson have contributed £500 each in aid of the building fund.

Jan. 20th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Mumbles Oyster Beds.

A GREAT deal of indignation is being expressed by the members of the Oystermouth district council, within whose area of administration are situated the celebrated Mumbles oyster beds, at the report submitted to the Worshipful Company of Fishmongers by Dr. Klein upon the Mumbles oysters. Dr. Klein in his report stated that half of the oysters examined contained bacillus coli communis and one out of six contained spores of bacillus enteritidis and he concluded, therefore, that there was sewage pollution, but only to a limited extent. The sewage from the Oystermouth district is discharged into the sea about 200 yards beyond the oyster beds and it has been proposed that the outfall should be carried out still further, although, as the population of the district is less than 5000, the safest and most practicable plan would appear to be to treat the sewage on land and to discharge the effluent into the sea. At a special meeting of the Glamorgan sea fisheries board a disposition was shown to dispute the accuracy of Dr. Klein's conclusions, one member even hinting that it was to the interest of the Fishmongers' Company, who are large oyster planters, to pollute the samples examined: "Some one," he said, "might have dipped the oysters into a sewer for all they knew." The interests of the district are not likely to be served best by such utterances as this. Further bacteriological examinations are now being made independently by the Board of Trade and by the Glamorgan sea fisheries board.

Examination of Water-supplies.

Although it is no part of their duties as prescribed by the Local Government Board many medical officers of health in rural districts are expected to make an analytical examination of samples of water sent to them for the purpose. As no special payment is made for this additional labour it is hardly to be expected that a very detailed examination can be made and the experience of a medical officer of health in a rural district of Somersetshire may serve as a warning to those medical officers of health who in the past have made preliminary analyses of samples of water procured from supplies within their districts. A water which this gentleman had analysed and had found to be free from the impurities ordinarily found in polluted samples was subsequently submitted by the county analyst to a more extended examination and was found to contain strychnine and traces of arsenic suggestive in the opinion of the analyst of rat poison.

Notification of Measles.

The Pontypool rural district council has added measles to the list of diseases compulsorily notifiable within the district, the addition to remain in force for at least five years—a condition insisted upon by the Local Government Board, that period in the opinion of the Board being necessary to allow a fair time to judge of the results.

Newport Workmen's Hospital Fund.

A sum of over £1200 was subscribed last year to the Newport and County Hospital through the weekly collections of the workmen in the town of Newport.

Bristol University College Colston Society.

The annual dinner of this society was held on Jan. 13th under the presidency of the Bishop of Bristol. There was a large gathering, including Sir J. Crichton Browne who was the guest of the evening and delivered an interesting speech in the course of which he alluded to the pressing need there was for Bristol to take up the movement for initiating a university for the west of England with its seat at Bristol. The collection amounted to £374.

Medicine or Refreshment?

The recorder of Bristol had a somewhat curious point to decide on Jan. 10th. A refreshment-house keeper had been fined by the bench of magistrates for selling refreshments after 11 P.M. The "refreshments" consisted of "sarsaparilla and dandelion stout," which the defendant contended were medicinal compounds. The recorder upheld the conviction.

Nickel Carbonyl Poisoning.

During the first week of December last two workmen

employed at the Mond nickel works at Clydach, near Swansea, died from what appeared to be the effects of poisoning by some obscure substance given off during the processes on which they were engaged. Both men were ill for several days before their death, and their symptoms were similar to those exhibited by other men who had been attacked in the previous months but who had recovered. The most prominent features in all the cases were headache, giddiness, high fever, and rapid breathing. Post-mortem examination in the two fatal cases revealed a fatty and in one instance a dilated heart. The Mond Nickel Company was very anxious to ascertain the cause of these fatalities and Dr. F. W. Tunnicliffe of King's College, London, and Mr. H. G. Plimmer of St. Mary's Hospital were accordingly associated with Dr. John Jones, the surgeon to the works, in making a full investigation. These gentlemen were later assisted by Dr. J. F. Payne, Dr. F. W. Mott, and Dr. Otto Hehner. The conclusions which were arrived at, and which were given to a coroner's jury on Jan. 13th by Dr. Tunnicliffe, were that "death was caused by nickel carbonyl, a substance inhaled from the dust given off during employment, which, although the immediate symptoms of it were transient, caused after a short time degeneration of certain parts of the nervous system," and that "this substance also in all probability produced a change in the condition of the blood." Further investigations are being made with regard to the scientific aspect of the question.

Jan. 19th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The New Principal of the University of Edinburgh.

SIR WILLIAM TURNER, President of the General Medical Council and Professor of Anatomy in the University of Edinburgh, has been appointed Principal of the University in place of Sir William Muir.

Inter-Universities Conference in Edinburgh.

The annual conference of students' representatives from the Universities of Edinburgh, Glasgow, Aberdeen, and St. Andrews took place in Edinburgh at the end of last week. The conference was held in the hall of the Union and was presided over by the chairman of the students' representative council of Edinburgh University who welcomed the representatives from the other universities. Sir William Muir was also present and extended a warm welcome to the representatives. He stated in the course of his remarks that that was the last University function in which he would take part before he laid down his office. This conference is the fifteenth which has been held alternately in the different universities. Amongst the motions proposed and carried by the conference were some of medical interest. One was that a petition should be sent to the senatus of each university other than Aberdeen to institute a double final examination in medicine, as is at present done in Aberdeen; the adoption of this by the universities would be a great boon to the students, for at present failure means having to spend another year or to be content with a college qualification. Another motion dealt with the need of reform in the medical curriculum. The main point which made the curriculum unsatisfactory was the present position of surgery and materia medica. The proposer of this motion did not understand how any body of men allowed the curriculum as at present arranged to be foisted on to the universities, but the fact is this notion is erroneous, for there can be no doubt that the place of surgery in the early part of the medical curriculum is a relic or survival of the old apprenticeship days and of the ideas which were then supreme. Now vested interests and conservative sentiment uphold what is logically untenable. Another motion approved of the division of the academic year into three sessions or terms. The final motion put on record the opinion of the conference that more attention ought to be devoted to physical training than is at present done in the universities. Another subject which was mooted, but not discussed, had for its object the possibility of establishing a universities magazine and of approaching Mr. Carnegie to see if he would endow such an undertaking. The conference wisely decided not to discuss this matter as it was not on the billet of business. From this it will be seen that there is a growing democratic influence in the Scottish universities which might become very powerful were it not that the students are only a few years at the universities and are senior students before their opinions on many subjects carry any weight. In this conference they have shown much judgment in the motions they adopted.

Edinburgh University Union Extension Scheme.

A large public meeting in support of the Edinburgh University Union extension scheme was held in the M'Ewan Hall on the afternoon of Jan. 13th. The hall was crowded, the galleries being occupied by students who had been granted a half holiday. Much disappointment was felt at the absence of the Prime Minister who, as Chancellor of the University, was to have presided over the gathering. Mr. Balfour's sudden indisposition had, however, made it impossible for him to be present. The chair was taken by the Lord Rector, Sir R. B. Finlay, K.C., M.P., Attorney-General for England. He was supported by, among others, Lord Robertson of Forteviot (a former Lord Rector of the University), Lord Kinross, Lord Kinnear, Lord Stormonth-Darling, a large number of the professorial staff, and many citizens interested in the scheme. Apologies were read from the Chancellor, from the Principal, Sir William Muir, and others. The Lord Rector, who was received with great applause, referred with regret to the disappointment they had all received from Mr. Balfour's enforced absence that afternoon. Their only consolation was that their cause was so good a one that they trusted it would not suffer in consequence. He himself felt that he had perhaps one qualification for speaking on behalf of the Students' Union, that qualification being that he had known the Edinburgh University very well 40 years ago and was therefore pretty well qualified to recognise the enormous stride that had been made in the development of university life, thanks to the foundation of the union which they were there that afternoon to support. In his student days the students were very much isolated, there being no collective university organisation for bringing them together. In their Scottish universities they had not developed the college system of universities in England and what they had to aim at was the development of a collective university life. This was one of the great features of the union which they had met together for the purpose of supporting and extending. The union also played the important part of forming a common meeting place for students of arts and medicine who in former days saw very little of each other. The union had achieved a great success, but much remained still to be done, and if it had not been for its success in the past they would not be met there that day with the feeling that it was imperative in the interests of the University to do what in them lay to promote the extension of the union. The debating hall he considered a part of the building which could hardly be improved upon. It was such as some senates might almost envy. The University debates were to his mind a great feature of the life which the union promoted. Extension was needed in the dining-room, in the library, and in the facilities for outdoor and indoor recreation. The opportunity now presented itself for having those changes made. They had the option of getting the ground required for the additional buildings and he trusted that in the near future they would be able to announce to the students of Edinburgh that they were at last in possession of a union adequately fulfilling all their requirements. Lord Robertson, who was cordially received, then read a motion in which the meeting pledged itself to do all in its power to assist in raising the necessary funds for the extension of the union. In subsequent remarks he dwelt specially on the value of the union as a social and educative centre for the students outside their classes, and he struck an important note when he reminded them that as it was one of the honours of the University that there would be always a large number of poor men among the students any institution which was to reap the best and most complete thought of the University should do nothing which would make it difficult for a poor man to resort to the union. There would be, he was sure, such a standard of living and such ideas of industry and of conduct as would not detract from, but would merely develop and give fuller play to, the old ideas that had done so much for the University. The motion, which was seconded by the President of the Students' Union, was put to the meeting and was carried by acclamation. An acting committee was then appointed. After a vote of thanks to Sir Robert

Finlay the proceedings terminated. Tea was served in the union at the close of the meeting.

Small-pox in Leith.

Two cases of small-pox are reported as having occurred in Leith. The infected persons are a seaman and a fireman who were engaged on board a steamer which arrived from Riga on Jan. 13th. The circumstances connected with the outbreak are that at Riga one of the crew was landed and taken to hospital as he was believed to have small-pox. Two days later the authorities said that he was suffering from chicken-pox and he was allowed to return to his ship. Another of the crew became ill and went to his own home in Leith where he was seen by a medical man who reported him to the medical officer of health as a suspected case of small-pox. The sick man was at once removed to the small-pox hospital and the medical officer of health visited the steamer and found the man who had been seized at Riga at work on the ship and also learned that he had been engaged in discharging the steamer's cargo. This first patient was also removed to the small-pox hospital, but if he continued to be infective it is impossible to calculate the possible harm that may have been done in the meanwhile. Those who have been in contact with the two men have been either isolated or are under medical supervision.

Aberdeen University Medical Society.

At a meeting of this society on Jan. 16th Mr. G. Grant Macdonald, M.A., read a paper on Conservatism in Surgery. Mr F. Hernaman-Johnson followed with a paper on the Pros and Cons of Vivisection. Both papers were most interesting and were awarded hearty votes of thanks.

The Notification of Measles and Whooping-cough in Aberdeen.

The public health committee of Aberdeen town council has recommended the discontinuance of notifying measles and whooping-cough. 1100 cases were notified last month, and it considered that £400 thus annually paid to medical men might be more beneficially expended. Dr. Matthew Hay in his report stated that during the past ten years measles and whooping-cough have caused 1451 deaths in Aberdeen, while during the same period the total deaths from the whole of the other principal zymotic diseases have amounted to 671; any step which might affect the great mortality from measles and whooping-cough demanded the fullest and most serious consideration.

Dr. C. D. F. Phillips has resigned the assistant examinership in materia medica at Aberdeen University owing to ill-health.

Jan. 20th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Public Health of Dublin.

A NEW case of small-pox has appeared in the Hardwicke Hospital whence the patient who imported the disease from Liverpool was removed for treatment. The matter seems to be rather serious on account of the congested condition of that part of the city and of the proximity of large public institutions such as the Richmond Surgical Hospital and the Richmond Lunatic Asylum. On Jan. 10th another meeting of the public health committee was held under the presidency of the Lord Mayor to fix a site for the long-deferred isolation hospital. After considering the local opposition to several proposals the committee made no selection but decided that if another urgent case of small-pox presented itself the patient should be isolated at the Pigeon House. Sir Charles Cameron is reported to have said that he thought it improbable that any outbreak of small-pox would take place in the city in the immediate future. The report of the Cork-street Fever Hospital is generally a good index of the health of Dublin as regards zymotic disease. The committee met on Jan. 8th and the registrar's report is not very satisfactory. It stated that the admissions were very high owing to the continued prevalence of scarlet fever and diphtheria, which diseases were of a severe type. Several cases of typhus fever were admitted, being in excess of any previous month for several years. Enteric fever shows continued abatement in numbers and severity. The measles epidemic has nearly entirely ceased.

Dublin University Biological Association.

At the opening meeting of the Dublin University Biological Association the incoming president, Dr. T. P. C. Fitzpatrick, chose as the subject of his address the Public Health Control of Consumption, and described the measures for checking the spread of the disease which have been adopted with very good results in Manchester and in New York. Sir John W. Moore proposed that the best thanks of the association be accorded to the President for his address and in the course of his speech remarked that he himself did not agree with the Dublin authorities—that it was not possible to have separate wards for the treatment of consumption in general hospitals. Sir Charles A. Cameron, C.B., in seconding the motion, pointed out that the public health committee was in favour of compulsory notification, but that the corporation itself opposed it.

The Incorporated Orthopædic Hospital of Ireland.

The annual meeting of the friends and supporters of the Incorporated Orthopædic Hospital of Ireland was held on Jan. 14th in the hospital premises, Great Brunswick-street, Lord Justice Walker being in the chair. It was announced that much larger and more suitable premises for the hospital had recently been acquired in Upper Merrion-street at a cost of considerably more than £2000. It may interest some readers of THE LANCET to note that the house which is about to be transformed into a hospital was until quite recently one of the finest of the old residential mansions of Dublin. It is separated only by one building from the house which is, perhaps, the most famous in Ireland—Mornington House, in which the Duke of Wellington was born in 1769, where Lord Cloncurry and Lord Castlereagh lived, and where "Pamela" was staying when her ill-fated husband, Lord Edward Fitzgerald, was arrested.

The late Mr. James O'Shaughnessy, M.R.C.S. Eng., J.P., D.L.

Mr. James O'Shaughnessy, whose death took place in Limerick on Jan. 14th in his ninety-third year, was long ago a highly popular and respected medical practitioner in that city. For the last two generations, however, his name has been known rather as a philanthropist and as a leader in every social project for the advancement of his fellow-countrymen. Several local charitable institutions have long benefited by his care and by his open purse. He was the senior of the magistrates of Ireland and a deputy lieutenant, and he had served in the office of high sheriff and on many occasions as foreman of the grand jury of Limerick. His only son, Mr. Richard O'Shaughnessy, B.L., who represented the borough of Limerick in Parliament for several years, resides in Dublin and is a distinguished graduate and former scholar of the University of Dublin. He is now one of His Majesty's Commissioners of the Irish Board of Public Works.

Derry Lunatic Asylum.

At a special meeting of the committee of management of the Derry Asylum held in Coleraine on Jan. 16th it was decided to adopt the report of the subcommittee which was appointed to consider the plans for the proposed new buildings at Gransha. It recommends that two villas for 50 patients each, a residence for the medical officer, and administrative, sanitation, and cooking buildings, should be erected and furnished with electric lighting, at a cost not exceeding £15,000.

The Mater Infirmorum Hospital, Belfast.

From the printed statement of the accounts of the Mater Infirmorum Hospital, Belfast, for the year from Nov. 1st, 1901, to Oct. 31st, 1902, it appears that the receipts (including a sum of £206 14*s.* 3½*d.*, cash overdrawn from the bank) were £4583 12*s.* 6*d.* Last year the overdraft was £300, so that there is a slight financial improvement this year.

Down Lunatic Asylum.

In his report of inspection of this asylum Sir G. P. O'Farrell, inspector of lunatics, says: "Each succeeding visit of inspection to this asylum satisfies me more completely of the excellent management of the resident medical superintendent and of the amount of time and thought which he devotes to the efficient and economical working of the institution. The difference between able and careful and lax and inefficient administration of an asylum means a difference of several thousand pounds a year in the cost of management, and it would be difficult to find a stronger proof of this fact than Downpatrick, where the resident medical superintendent, by formulating for his committee and for the county council an economical scheme for providing for the chronic and harmless insane of the district, and by the minute attention which he gives to the details of his duties, has effected a considerable saving to the ratepayers."

Jan. 20th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Medicine at a Discount.

THE increasing difficulty which a present-day medical man experiences in making a living by the exercise of his profession finds expression in concessions which are not only regrettable but are also seriously compromising to the dignity of that profession. The council of the Syndicate of Medical Men of the Department of the Seine has just been considering certain circulars sent out by some newly-qualified medical practitioners which have been distributed to certain families in well-to-do circumstances living within the said practitioners' sphere of work These circulars offer medical attendance on a whole family by contract, the yearly subscription being very small. The council of the syndicate decided that such practice was both culpable and dangerous and resolved that the said practitioners should be summoned before the syndicate and that the president should endeavour to make them understand the gravity of their position. This procedure is, unfortunately, the only one in the power of the syndicate to carry out. At Tarbes the friendly societies, encouraged by the Government which considers that their action is a moderate and practical form of Socialism, have increased to about 20 in number and include a quarter of the whole population, the remaining three-quarters of the inhabitants being classed as indigents. These friendly societies succeeded in imposing on the medical men of Tarbes, whose only paying patients they were, the condition that they should attend a family for 10 francs per annum, exclusively of major operations and midwifery cases. At the beginning of the year, however, the friendly societies made a further stride and reduced the pay to eight francs per family per annum, to include major operations and midwifery. Thereupon the medical men of Tarbes unanimously struck and the friendly societies imported from Toulouse two newly qualified medical men who lost no time in accepting the reduced pay. These two practitioners now look after the health of the whole town of Tarbes—that is to say, so far as regards paying patients, while the other medical men see no one but gratuitous patients. There are, however, two exceptions—namely, the medical officers to the arsenal who receive 2400 francs each per annum from the War Office. But, encouraged by the example of the people of Tarbes, the director of the arsenal set about revising the annual payment of his medical officers and put the post up to auction, so to speak. The two actual holders of the post stood out for the old salary, while the two young practitioners from Toulouse tendered their acceptance of the post at 1200 francs per annum, an offer which the authorities promptly accepted. The Tarbes syndicate of medical men thereupon sent in a protest to the Minister of War but most probably they will gain nothing by this action.

Further Results of the Workmen's Compensation Act.

I have at various times given your readers some account of the working of the Workmen's Compensation Act which makes the employer responsible for accidents sustained by a workman in the course of his employment and obliges him to provide medical aid at his own cost. A new point has recently arisen—namely, when a workman refuses medical aid. Sundry decisions have been given by the courts on this point, as, for instance, the following. The court of Rennes has decided that if a workman refuses medical aid and finds himself thereby incapacitated, the employer is released from any obligation to repair the wrong which the workman has inflicted on himself. The court of Amiens has refused to adjudge a pension to an injured workman who refused medical aid, but has simply allotted him an indemnity for temporary disablement. The court considered that his permanent disablement was due entirely to his refusal to submit to measures which the medical men considered would have completely cured him. Other courts have adjudicated on cases in which a workman refused to submit to an operation which would have enabled him to do at least some work. The court of Besançon has decided that if a workman upon whom an operation had been performed refuses to allow any further treatment which would be neither dangerous nor productive of pain he cannot hold his employer responsible for any complications which may arise. The court of Aix has decided that a workman is within his rights in refusing to submit to an operation, even a slight one, which it is considered necessary to perform for his cure or relief, but that in such case the employer cannot be held responsible for any complications which may arise. The employer in such case is only to be held responsible for the actual wound, and the court in such cases has only awarded the workman a pension on the very lowest scale.

Obituary.

Dr. Henri Varnier recently died at the early age of 43 years. Born at Epernay in 1859, he became *interne* in 1882, *chef de clinique* in 1891, *agrégé* in 1892, and obstetric physician to the hospitals in 1894. He succeeded in attracting the notice of Pinard, who besides admiring his work had for him a warm personal friendship and who gave him a great deal of work at the Baudelocque clinic. Varnier wrote much; his chief works, besides his thesis for the degree of Doctor the subject of which was "The Musculature of the Inferior Pelvic Strait from an Obstetrical Point of View," were the following—"An Introduction to the Clinical Study and Practice of Labour," written in collaboration with Professor Farabœuf"; "Every-day Obstetrics" (*Obstétrique Journalière*); "Studies in Normal and Pathological Obstetrical Anatomy," written in collaboration with Pinard; an "Anatomical Study on Vicious Implantation of the Placenta," written in collaboration with Champetier de Ribes; numerous papers on Symphysiotomy; and Researches on Radiography as applied to Obstetrics. For 13 years Dr. Varnier directed the *Annales de Gynécologie*, on which publication he succeeded Pinard as editor of the obstetrical department. For many years, too, he wrote all the obstetrical articles in the *Revue Pratique d'Obstétrique et Pédiatrie*, which he himself founded in 1888.

Jan. 20th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

The Medical Congress: the Anatomical Museum.

ONE of the most successful items of the Medical Congress at Cairo was the collection of human remains which have recently been arranged by Dr. G. Elliot Smith who is working in conjunction with others for the University of California and the Egyptian Medical School. The remains date from the earliest known pre-historic times and must therefore be more than 7000 years old, and side by side with them can now be seen human relics from all the most important dynasties of Egyptian history, together with Roman, Ptolemaic, Coptic, and other mummies, until we reach the modern preparations taken from the dissecting-room of to-day. Of these it is only natural that the greatest interest should centre round the specimens of pre-historic man. They were buried in the sand in the neighbourhood of Girgheh in Upper Egypt, without any attempt at mummifying. They lie now in glass cases crouched on the left side with knees bent, preserved to us only by having been buried in dry sand. The men were buried with goat-skin aprons tied round their waists with rope and many of the women have long, curly brown hair. No great anatomical differences from men of our own time have yet been discovered, but the skull was distinctly a small one, having an internal capacity of one litre, which compares unfavourably with the one and a half litres of the modern Egyptian peasant's skull or with the usual European skull of two litres.

It will take a year or two to study the anatomical peculiarities, but it appears at first sight that the pre-historic sacrum resembles that of the gorilla rather than that of man. The collection is made more interesting by photographs taken *in situ* of the cemetery and of many of the bodies lying huddled up together before removal. Dr. Reissner is still working on the spot and has some 70 additional graves to examine during this winter. The men and women seem to have been buried together and most of the graves have been plundered in bygone times in order to steal ornaments, especially from the women. Many of the latter have been decapitated in order to remove the ivory ring which they wore round their necks. Some of the soft parts can be seen with the greatest ease. The shrunken brains lying within the skulls still show well-marked convolutions, the eyes of many have been preserved, and the lens in some eyes can be distinctly seen, probably due to senile cataract. Dr. Smith has been able to demonstrate instances of the subclavian artery, diaphragm, larynx, trachea, and bronchi, sigmoid flexure of the colon, false ligaments of the bladder, sacral plexus, &c. Many of the intestines contain lumps of fæces which could easily be recognised and

Dr. Looss now proposes to examine them to see if there are any traces of ankylostoma eggs or worms. There are several good specimens of the vulva with labia majora and labia minora and one chieftain had died with a huge prolapse of the rectum, which was modestly hidden by an earthenware pot. One man had died with an unreduced dislocation of the knee, with the formation of a false joint, but his fractured femur on the same side had reunited well. Some of the bones showed evidence of osteo-arthritis and many of the lower jaws must have been furnished with very distinct chins, for the depth of the anterior surface of the lower jaw was almost double that of the usual maxilla. Needless to say, every jaw was furnished with splendid teeth, though in the case of some of the older people they were worn down almost to the socket.

The second dynasty, years before the age of the Pyramids, shows good specimens of renal calculi exactly like modern ones. In a tomb of the fifth dynasty the body of a child was found with a fracture of the middle of the femur and four wooden splints, enveloped in linen, had been tied round the thigh with bandages. In another tomb, dating from the same period, B.C. 3500, perhaps from the same surgeon's handiwork, another child was found with a fracture of the radius and ulna, the arm being tied up with splints of bark which had previously been wrapped round with linen. There had evidently been some hæmorrhage in this case, for a little pad of fibre had been put over a wound under the splint. In another room a naked skull with long brown hair fascinates one with its alluring grin, and I was hardly surprised to find that it belonged to an attractive dancing girl of the twentieth dynasty, about B.C. 1200.

Space does not allow a more detailed notice of these wonders, but I may perhaps mention two of the most recent preparations which have been added to the museum. Among the collection of brains is one of a twentieth century peasant of Egypt, aged 30 years, the man being about 5 feet 6 inches high, which weighed after removal from the body 69·8 ounces. Another interesting fresh preparation is the brain of a child who when he died at the age of three months was found to have no cerebral hemispheres at all.

Cairo, Jan. 11th.

Medical News.

FREEMASONRY.—*Rahere Lodge, No. 2546.*—A meeting of this Lodge was held at Frascati's Restaurant, Oxford-street, London, W., on Jan. 13th, W. Bro. G. H. R. Holden, M.D., W.M., being in the chair. Bro. Ogle was admitted to the third degree and Bro. Dale Wood to the second degree. Grants of £5 to a brother in distress and of 10 guineas to the Royal Masonic Benevolent Institution were confirmed. It was decided to postpone any decision in regard to the formation of the William Harvey Chapter until the next meeting of the Lodge. The brethren subsequently dined together.—*The Cheselden Lodge, No. 2870.*—A regular meeting of this Lodge was held at the Trocadéro Restaurant, Piccadilly-circus, London, W., on Friday, Jan. 16th, the Worshipful Master, W. Bro. G. Crawford Thomson, being in the chair. Bro. Thomas Gregor Brodie, M.D., of the Enoch Lodge, No. 11, and Bro. Arthur Bevan, M.B., of the Old Westminsters' Lodge, No. 2233, were elected as joining members. Bros. Henry Naunton Robson, Stanley Wellby, Æmilius Cyril Birt, and Harold Douglas Singer were admitted to the second degree. Messrs. Joseph William Rob, Anthony Bourchier Bradford, Francis Joseph Child, William Hill, Arthur Cyril Hudson, and Harry Spurrier, all house surgeons of St. Thomas's Hospital, were initiated into Freemasonry. At the conclusion of business the brethren and their guests dined together, a very pleasant evening being spent.—*Proposed Edinburgh University Lodge.*—A petition is being presented to Grand Lodge by the Freemasons connected with Edinburgh University for a new Lodge to be named after their *alma mater*. Those members of the craft who wish to be included amongst the founders should communicate with Dr. McCann, 5, Curzon-street, Mayfair, W.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the directors of this society was held on Jan. 14th, Mr. Christopher Heath, the President, being in the chair. Three new members were elected. The deaths of seven members were reported; among the deaths were those of two vice-presidents, Mr. Tegart and Mr. Manley Sims; both had been most energetic members and had taken great interest in the society. Two members had ceased to belong to the society. Two widows and three orphans made applications for assistance and grants were made; all had been left without any means of subsistence. It was resolved to distribute £1376 10*s.* among the 56 widows, 13 orphans, and five recipients of special grants from the Copeland Fund. £590 had been given as presents at Christmas to the widows and orphans in receipt of grants. The expenses of the quarter amounted to £74 15*s.* 6*d.*

EASTERN DISPENSARY, BATH.—The sixtieth annual meeting of the subscribers of this institution was held on Jan. 15th under the presidency of the mayor. The medical report stated that 4229 patients had been treated during 1902, including 882 cases treated at their own homes. These figures compared favourably with those of other years. The financial statement showed a deficiency of £67 at the end of the year, which sum has since been raised by a special appeal.

SLAUGHTERING AN ELEPHANT.—The *Engineer* of Jan. 16th states that an elephant weighing four tons was killed recently at Coney Island, near New York, the proceedings being watched by a large crowd of spectators. Poison, electrocution, and strangulation were resorted to, 6000 volts being the electrical pressure applied, after a feed of carrots containing cyanide of potassium. Finally, a knotted rope was placed round the animal's neck and then attached to a steam-engine. It is reported that the electric shock was sufficient.

VACCINATION EXPENDITURE.—At the meeting of the Plymouth court of guardians held on Jan. 13th it was resolved to petition the Local Government Board to allow stations to be provided where persons could be revaccinated in times of small-pox epidemics, with a fee for the public vaccinator in each case not exceeding 2*s.* 6*d.* It was also stated that in 1899 the total vaccination fees and expenses in Plymouth amounted to £92; in 1900 they were £311; in 1901 they were £281; and in 1902 they were £368.

BABY-FARMING IN THE CHORLTON UNION.—A report on the conditions of child life while under the care of foster-mothers in the Chorlton Union has just been drawn up by Miss Frances Zanetti, the union inspector under the Infant Life Protection Act. It shows the disadvantages which illegitimate children, or, indeed, any others so unfortunate as to be reared by foster-mothers, generally suffer, and how heavily they are handicapped at their start in life. During the past year 110 children have been under her inspection, of whom 50 came within the Act, while there were 60 cases where one child only was nursed. In a number of the single cases the feeding was improper and there is among many of the women an objection to use any but long-tube bottles, which of course are difficult to keep clean and sweet. The reason no doubt is that they are looked upon as labour-saving machines, requiring less personal attention than those with a short teat, as the child can be left to himself in his cot or other receptacle when engaged in suction. It speaks well for the women that most of them allowed Miss Zanetti to see these single nurse-children, though some disputed her right to do so and others would not let her see the children's beds. In not a few cases the conditions were bad. In one house the bedrooms were given up to pigeons, owing, no doubt, to the sporting or commercial instincts of the husband, while the family and the nurse-child slept downstairs on chairs and sofas, and "nearly all the bedding was in the pawnshop." This was in Longsight where "baby-farming seems to be a favourite occupation and is plied purely for gain," and the money paid for the maintenance of the children seemed to be "the chief source of income so far as the nurses were concerned." As might be expected, these cases were generally unsatisfactory, for the children were stinted of food, especially of milk. And such cases as these showed the desirability in Miss Zanetti's opinion "of extending the existing Act to all children not brought up by their natural guardians." The payment per week for the maintenance of a nurse-child was usually 5*s.*, sometimes rather less and sometimes more, but by no means did it follow that the children are best cared for where the payments are highest. The complaints were chiefly that the houses were untidy, overcrowded, and dirty; that the nurses

had too much work of other kinds to do; and "that they wilfully fed the children upon articles which the inspector had informed them to be detrimental to the children's health." There is little doubt that sufficient evidence exists to show that the cases of nursing for profit, even when only one child is nursed, should be open to the inspector's visits, and that the Infant Life Protection Act should be extended so as to cover these cases.

THE Chelsea Hospital for Women has received from "H. M. E." a further donation of £2000.

A CENTENARIAN.—On Jan. 10th Margaret Ketteridge, an inmate of Chepstow workhouse, attained her 101st birthday. She was born at Tidenham, a village one mile from Chepstow.

SWINDON ISOLATION HOSPITAL.—On Jan. 14th at midnight a serious fire broke out at the Isolation Hospital, Swindon. The damage was considerable and amounted to some thousands of pounds. A number of patients had to be removed but no panic occurred.

PRESENTATION TO A MEDICAL PRACTITIONER.—At a meeting of the Leeds Students Medical Society on Jan. 13th Mr. Frederick Holmes, M.R.C.S. Eng., who has recently resigned the appointment of instructor in vaccination after 35 years of service, was presented with a silver inkstand.

AN UNREGISTERED DENTIST.—On Jan. 13th at the Cardiff police-court a man named Cardew was summoned before the stipendiary magistrate for that he, not being registered under the Dentists Act, 1878, did unlawfully use a description implying that he was a person specially qualified to practise dentistry. Defendant, who pleaded guilty, was fined £5 and costs.

AMERICAN PATENTS.—An inventor has patented a burial vault which appears to be composed of cement slabs connected together by mortises and tenons. Another inventor has patented a method of protecting river banks. It consists in planting rows of trees along the river and bending them down "with the branches in the water in position to check the flow and engage the silt and other floating matter and connecting the trees and maintaining them in position until the silt and floating matter has eventually formed a solid supplemental bank over the original bank of the stream." Specifications and drawings of both contrivances are given in the *Official Gazette* of the United States Patent Office published on Dec. 30th, 1902.

SOCIETY OF MEDICAL PHONOGRAPHERS.—This society will hold its next annual shorthand examination early in May. Two prizes will be offered, each of the value of £3, one for first-year students and one for students of more than one year's standing. The competition will be open to any registered medical student in the United Kingdom who has not taken a first prize at one of the society's previous examinations. It will be held simultaneously in London, Edinburgh, Dublin, and at any provincial medical centre in the United Kingdom at which a candidate or candidates shall come forward. There is no entrance fee for the examination. Intending candidates should send in their names as early as possible to Dr. P. G. Griffith, Bonhams, Farnborough, Hants, who will furnish them in return with a detailed prospectus of the examination. The latest date for receiving entries will be April 15th.

VITAL STATISTICS OF THE COUNTY OF DURHAM.—We have received from Dr. T. E. Hill, medical officer of health of the county of Durham, the chief vital statistics of the county for 1902. The figures mostly compare very favourably with those for the previous year; the two groups are as follows, those for 1901 being inclosed in parentheses and following those for 1902, so as to facilitate comparison. The birth-rates and death-rates are per 1000 of the population. Estimated population in 1902, 849,620 (836,650 in 1901); birth-rate, 35·6 (36·2 in 1901); death-rate, 16·6 (19·0 in 1901); zymotic death-rate, 1·68 (2·96 in 1901); infant mortality-rate per 1000 births, 139 (177 in 1901); small-pox, 0·001 (0·003 in 1901); scarlet fever, 0·19 (0·25 in 1901); diphtheria and membranous croup, 0·26 (0·18 in 1901); enteric fever and continued fever, 0·14 (0·27 in 1901); measles, 0·37 (0·48 in 1901); whooping-cough, 0·38 (0·33 in 1901); diarrhœa, 0·31 (1·43 in 1901); enteritis, &c., 0·26 (0·66 in 1901); phthisis, 1·06 (1·11 in 1901); and respiratory diseases, 2·97 (2·81 in 1901).

BOOKS, ETC., RECEIVED.

ANGLO-AMERICAN OPTICAL COMPANY, 47, Hatton Garden, E.C.
Refraction. By Guy E. Druiff. Price not stated.

BAGGULEY, G. T., High-street, Newcastle, Staffs.
A Concise History of the Rise and Progress of the North Staffordshire Infirmary and Eye Hospital from the year 1802 to 1902. By Ralph Hordley, late Secretary and House Steward. Price 5s. net.

BROWNE, T. B., LIMITED, 163, Queen Victoria-street, E.C.
The Advertiser's A B C: The Standard Advertisement Press Directory. 1903 Edition. Price 10s. 6d.

CORNISH, J. E., St. Ann's-square, Manchester. (Macmillan and Co. London).
The Victoria University Calendar for the Year 1903. Price 1s.

GREEN, WILLIAM AND SONS, Edinburgh.
Essentials of Human Physiology. For Medical Students. By D. Noël Paton, M.D., B.Sc., F.R.C.P. Ed., Superintendent of the Research Laboratory of the Royal College of Physicians of Edinburgh. Price not stated.

JENKINS, WILLIAM R., 851 and 853, Sixth-avenue, New York.
A Treatise on Surgical Therapeutics of Domestic Animals. By P. J. Cadiot, Professor, and J. Almy, Adjunct in the Veterinary School of Alfort. Translated by Professor A. Liautard, M.D.V.M., of the American Veterinary College. Vol. i., Part III. Price not stated.

LEHMANN, J. F., München.
Lehmann's Medizinische Handatlanten: Band viii. Atlas und Grundriss der Traumatischen Frakturen und Luxationen. Von Professor Dr. H. Helferich in Kiel. Sechste verbesserte und vermehrte Auflage. Price M 12.
Band xxix. Atlas und Grundriss der Allgemeinen Diagnostik und Therapie der Nervenkrankheiten. Von Dr. W. Seiffer, Privatdozent an der Universität und Oberarzt an der Nervenklinik der Kgl. Charité, Berlin. Mit einem Vorwort von Professor Dr. Jolly, Geh. Medizinalrat, Berlin. Price M.12.

LONG, JOHN, 13 and 14, Norris-street, Haymarket, S.W.
The Parish Doctor. A Novel. By Alec Cook. Price 6s.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, E.C.
The Ventilation, Heating, and Management of Churches and Public Buildings. By J. W. Thomas, F.I.C., F.C.S., author of "Coal, Mine Gases, and Ventilation." Price 2s. 6d.
Bacteria in Daily Life. By Mrs. Percy Frankland, Fellow of the Royal Microscopical Society. Price 5s. net.
The Mycology of the Mouth. A Text-book of Oral Bacteria. By Kenneth Weldon Goadby, D.P.H. Camb., L.R.C.P., M.R.C.S., L.D.S. Eng., Bacteriologist and Lecturer on Bacteriology, National Dental Hospital. Price 8s. 6d. net.
Memoirs and Letters of Sir James Paget. Edited by Stephen Paget, one of his sons. Third edition (eighth impression). With a Postscript by Sir Thomas Smith. Price 6s. net.

MARLBOROUGH, E., AND CO., 51, Old Bailey, E.C.
Practical Hints for Travellers in the Near East. By E. A. Reynolds-Ball, F.R.G.S., Author of "Mediterranean Winter Resorts," &c. Price, cloth 2s. 6d.; paper 2s.

NEWMAN, W., AND CO., Calcutta. (EDWARD STANFORD, 27, Cockspur-street, London.)
Mosquitoes and Malaria. By Frederick Pearse, F.R.C.S. Eng., M.R.C.P. Lond., D.P.H. Camb., Special Plague Medical Officer with the Government of Bengal. Price 1 rupee; or 1s. 6d.

NEWNES, GEORGE, Limited, Southampton-street, Strand, W.C.
The Story of Alchemy and the Beginnings of Chemistry. By M. M. Pattison Muir, M.A., Fellow and Prælector in Chemistry of Gonville and Caius College, Cambridge. Price 1s.

PATERSON, SONS, AND CO., Glasgow.
Physiology of the Vocal Registers. By Golan E. Hoole. Price 2s. 6d. net.

PENTLAND, YOUNG J., Edinburgh and London.
The Edinburgh Medical Journal. Edited by G. A. Gibson, M.D., F.R.C.P. Edin., and Alexis Thomson, M.D., F.R.C.S. Edin. New series. Vol. xii. Price not stated.

RENSHAW, HENRY, 356, Strand, W.C.
Elements of Pharmacy, Materia Medica, and Therapeutics. By William Whitla, M.A., M.D. Eighth edition. Price not stated.

SANDS AND CO., 12, Burleigh-street, Strand, W.C.
The Army Medical System: What it is, is not, and ought to be. By One Who Knows. Price 1s. net.

SAUNDERS, W. B., AND CO., Philadelphia and London.
Diseases of the Bronchi, Lungs, and Pleura. (Nothnagel's Encyclopædia of Practical Medicine, English edition.) By Professor Dr. Friedrich A. Hoffmann of Leipsic, Professor Dr. O. Rosenbach of Breslau, and Dr. E. Aufrecht of Magdeburg. Edited, with additions, by John H. Musser, M.D., University of Pennsylvania. Authorised translation from the German, under the editorial supervision of Alfred Stengel, M.D., University of Pennsylvania. Price 21s. net.

SAFAR, JOSEF, Vienna.
Anleitung zur Durchführung bakteriologischer Untersuchungen für klinisch-diagnostische und hygienische Zwecke. Von Stabsarzt Dr. Ludwig Kamen. Vorstand des bakteriologischen Laboratoriums des k. u. k. Militär-Sanitäts-Komitees und Lehrer an der militärärztlichen Applikationsschule in Wien. Price M.8.40.

SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., Limited, London.

The Heresy of Teetotalism in the Light of Scripture, Science, and Legislation. By E. Thorne, author of "The Queen of the Colonies." Price 6*s*.

SMITH, ELDER, AND CO., 15, Waterloo-place, S.W.

A Clinical Lecture on Fractures in the Neighbourhood of Joints and on Sprains and Dislocations. By E. Noble Smith, F.R.C.S. Edin., &c., Senior Surgeon to the City Orthopædic Hospital. Delivered at the City Orthopædic Hospital, June 11th, 1902. Price 1*s*.

Coccygodynia. By E. Noble Smith, F.R.C.S. Edin., &c., Senior Surgeon to the City Orthopædic Hospital.

STUBER, A., Würzburg.

Die Physikalisch-diätetische Therapie in der ärztlichen Praxis. Von Dr. med. Bernhard Presch, Arzt in Hannover. Lieferung III. Price M. 2.

SWAN SONNENSCHEIN AND CO., LIMITED, Paternoster-square, E.C.

School Hygiene. By Arthur Newsholme, M.D., F.R.C.P., Medical Officer of Health of Brighton. New edition (1903), rewritten by the above, and by Walter C. C. Pakes, D.P.H., Analyst and Bacteriologist to the Transvaal Government. The Chapter on Eyesight written by James Kerr, M.D., Medical Officer to the School Board for London. Price 3*s*.

UNIVERSITY TUTORIAL PRESS, 157, Drury-lane, W.C.

The London University Guide, 1902-1903. Containing the Regulations for Examinations to be held in 1903 and 1904. ratis.

VOGEL, F. C. W., Leipsic.

Archiv für Experimentelle Pathologie and Pharmakologie. Redigirt von Dr. B. Naunyn, in Strassburg i.E., und Dr. O. Schmiedeberg, in Strassburg i.E. Band xlviii., 5 u. 6 Heft; Band xlix., 1 Heft.

WRIGHT, JOHN, AND CO., Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

Our Baby: For Mothers and Nurses. By Mrs. J. Langton Hewer, Certif. Obstetrical Society, London; late Hospital Ward Sister, Eighth edition, revised. Price, paper 1*s*. 6*d*., cloth 2*s*. 6*d*.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ADDINSELL, J. H., M.R.C.S., L.R.C.P., has been appointed House Surgeon at King's College Hospital.

CHADBURN, MAUD M., M.D. Lond., has been appointed Surgeon to the Out-patient Department at the New Hospital for Women.

DAY, H. B., M.R.C.S., L.R.C.P., has been appointed Junior House Physician at King's College Hospital.

HARPER, JOHN ROBINSON, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health for the Barnstaple Rural District.

HIGHET, H. C., M.D., C.M., D.P.H. Lond., has been appointed Medical Adviser to His Siamese Majesty's Customs Department, Bangkok, Siam.

HUGHES, G. W. G., M.R.C.S., L.R.C.P., has been appointed House Surgeon at King's College Hospital.

LEE, R. H., M.R.C.S., L.R.C.P., has been appointed House Surgeon at King's College Hospital.

LONDON, J. E., M.R.C.S., L.R.C.P. Lond., has been appointed a District Medical Officer of Coventry Union.

MACNAIR NORMAN, B.Sc., M.D. Glasg., M.R.C.S. Eng., L.R.C.P. Lond., F.F.P.S. Glasg., has been appointed Extra Honorary Dispensary Physician to the Royal Hospital for Sick Children, Glasgow.

MAIR, WILLIAM, M.A., M.B., Ch.B., B.Sc. Edin., D.P.H. Camb., has been appointed Resident Physician, Leith Public Health Hospital, East Pilton, and Assistant to the Medical Officer of Health for Leith.

MILTON, JOHN PENN, L.R.C.P. Lond., M.R.C.S., has been appointed Resident Medical Officer to the Didsworthy Sanatorium for Consumption.

PATCHETT, J., L.R.C.P. Edin., L.F.P.S. Glasg., has been re-appointed Medical Officer for the Billington District of the Blackburn Union.

PRITCHARD, S. C., M.B., Ch.B., has been appointed Senior House Physician at King's College Hospital.

REID, R. W., M.B., Ch.B., has been appointed House Accoucheur at King's College Hospital.

SHACKLETON, W. WEBB, M.D. Dubl., has been appointed Joint Medical Officer to the Royal Masonic Institution for Boys at Bushey.

SMITH, G. FRANCIS, M.R.C.S., L.R.C.P. Lond., has been appointed Joint Medical Officer to the Royal Masonic Institution for Boys at Bushey.

TUCK, GNOH LEAN, M.A., M.B., B.C. Cantab., has been appointed House Physician to the Hospital for Consumption, Brompton, S.W.

TURTLE, G. DE B., M.B., M.R.C.S., L.R.C.P., has been appointed Assistant House Accoucheur at King's College Hospital.

WALKER, JAMES PIXTON, L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Medical Officer to the Budleigh Salterton Cottage Hospital.

WHITE, CLEMENT, M.D., B.A., B.C. Camb., has been appointed Assistant Honorary Surgeon of St. Bartholomew's Hospital, Rochester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYR DISTRICT ASYLUM, Ayr.—TWO Assistant Medical Officers, unmarried. Salary £150 and £120, with board, lodging, laundry, and attendance.

BIRKENHEAD BOROUGH HOSPITAL.—Senior Resident Male House Surgeon. Salary £100 per annum, with board.

BOLTON INFIRMARY AND DISPENSARY.—Senior and Junior House Surgeons.—Salary for the senior £130, and for the junior £100 per annum, with apartments, board, and attendance.

BRITISH LYING-IN HOSPITAL.—Physician to Out-patients.

CANTERBURY BOROUGH ASYLUM.—Assistant Medical Officer, single. Salary £140 per annum, with apartments, board, and laundry.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £20, with board and residence.

KING'S COLLEGE HOSPITAL, London.—Senior Medical Registrar and Tutor. Also, Clinical Pathologist. Salary £250 a year.

LEEDS GENERAL INFIRMARY.—Resident Medical Officer. Salary £100 per annum, with board, residence, and washing.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

MANCHESTER ANCOATS HOSPITAL.—Resident House Surgeon. Salary £100 per annum, with board, residence, &c.

MARGATE ROYAL SEA-BATHING HOSPITAL.—Junior Resident Surgeon for six months, rising to Senior, for a further six months. Salary at rate of £80 and £120 respectively, with board and residence.

METROPOLITAN ASYLUMS BOARD ASYLUM, Darenth, Dartford, Kent.—Male Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £170, with rations, lodging, attendance, and washing.

NOBLE'S GENERAL HOSPITAL AND DISPENSARY, Douglas, Isle of Man.—Resident House Surgeon, single. Salary £82 per year, with board and washing.

NORTH RIDING ASYLUM, Clifton, York.—Senior Assistant Medical Officer, unmarried. Salary £150, rising to £200, with apartments, board, washing, and attendance.

PRESTON, LANCASHIRE, COUNTY ASYLUM, Whittingham.—Assistant Medical Officer, unmarried. Initial salary £150, with apartments, board, washing, and attendance.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

REDHILL, SURREY, EARLSWOOD ASYLUM.—Two Assistant Medical Officers, unmarried. Salary of the senior £160, rising to £200; of the junior £130, rising to £150, with apartments, board, and washing in each case.

ROYAL LONDON OPHTHALMIC HOSPITAL (MOORFIELDS EYE HOSPITAL), City-road, E.C.—Junior House Surgeon, also Third House Surgeon. Salary £75 and £50 respectively, with board and residence.

SHEFFIELD CHILDREN'S HOSPITAL.—House Surgeon. Salary £80 per annum with board, lodging, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Honorarium of £25, with board and lodging.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

WHITECHAPEL UNION INFIRMARY, Vallance-road, N.E.—First Assistant Resident Medical Officer. Salary £130 per annum, rising to £150, with rations, apartments, coal, gas, and washing.

Births, Marriages, and Deaths.

BIRTH.

SURRIDGE.—On Jan. 15th, at Knutsford, Cheshire, the wife of E. E. N. Surridge, B.A., M.B., B.C. Cantab., of a son.

MARRIAGES.

GORDON-GREEN—EDWARDS.—On Jan. 1st, 1903, at St. Jude's Church Southsea, Surgeon H. W. Gordon-Green, Royal Navy, M.R.C.S. Eng., L.R.C.P. Lond., to Maud, second daughter of Captain and Mrs. Edwards, Royal Navy, of 24, Worthing-road, Southsea.

ROUTH—PINNIGER.—On Jan. 15th, at Saviour's Church, St. George's-square, S.W., Charles Frederic Routh, M.D. Lond., to Evelyn Mary, only daughter of the late Rev. H. H. Pinniger.

THOMSON—COOPER.—On the 15th inst., at St. Mary's, Plaistow, Frederic Holland Thomson, M.B., C.M. Aberdeen, youngest son of the late Rev. William Thomson, of Belhelvie, Aberdeen, to Mary Ellen, only daughter of C. H. Cooper, Esq., of Beechworth, Bromley, Kent. Australian papers please copy.

DEATHS.

BISHOP.—On Jan. 14th, at Elham, near Canterbury, Kent, William Bishop, L.R.C.P. Edin., M.R.C.S., in his 58th year.

JACKSON.—On Jan. 21st, at Ingoldsby, Cockington, Torquay, John Jackson, F.R.C.S., aged 83. No flowers, by special request.

THOMSON.—At 27, Castle-street, Dumfries, on the 18th inst., after three days' illness, Alexander Thomson, M.D., aged 70 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE MEDICAL MAN, THE CORONER, AND THE PATHOLOGIST.

THE disagreement between the practitioners of Battersea and district and the South-West London coroner has become more openly manifest. To observers it seems that a little feeling has been displayed by Mr. Troutbeck, the coroner. He has on two or three occasions repeated his observations to the effect that the public interest must override all personal or professional considerations, the insinuation being that the only thing which the medical profession cares about is the fee. Here and there juries have been found willing to say that they agree with Mr. Troutbeck, but we are certain that they do not understand the large questions at issue. The action of the Battersea Borough Council—a body on which Dr. L. S. McManus is doing good work—would appear to have had some effect. On Wednesday the council expressed the opinion that the coroner had exceeded his duty in employing Dr. L. Freyberger so generally. Dr. McManus showed that "the pathologist to the London County Council" had performed 80 per cent. of the ordinary post-mortem examinations. On Friday, Jan. 16th, five inquests were held at the Battersea coroner's court and the professional evidence was given in each instance by a local practitioner. An interesting and instructive discussion took place between the coroner and Dr. J. Myles. Dr. Myles had had a dying child brought to him. He reported the case in due course, but when the coroner's officer called upon him for further particulars he declined to supply them. The coroner, after Dr. Myles had given his evidence, which included a very ful and able report on the post-mortem examination, asked why Dr. Myles refused to give the coroner's officer any information about the case and said that because Dr. Myles withheld information from the coroner's officer he had put the county to the expense of a perfectly useless inquest. He then addressed some remarks to the jury. He said that in the discharge of his duties he never allowed personal feelings to come in and that was a rule which should be absolutely and rigidly observed. It was perfectly well known that there was a great dispute among certain medical practitioners of the district as to how certain duties were to be performed, but there was one thing which seemed to him absolutely clear and beyond the shadow of a doubt and that was that personal rancour and feeling must not interfere with the obvious duty of medical men in giving information. The consequence of not giving information was sometimes to put the ratepayers of the county to perfectly useless expense. In this case even so ignorant a person as the landlady suspected what proved to be the real cause of death. The history of the case as it was reported to him was perfectly satisfactory except for the lack of medical history. If that had been reported it would have been perfectly obvious that the whole cause of death was naturally and fully explained. He trusted that no case of allowing personal feelings to enter into the matter would ever occur, especially seeing that medical men who attended an inquest got two guineas out of the rates. The jury, in returning a verdict of "Death from natural causes" (the child had died from convulsions induced by pneumonia and bronchitis), stated through their foreman that they endorsed what the coroner had said. We make bold to say that if the matter had been put fairly before them they would not have taken the view that they did. Mr. Troutbeck ought to see that either medical evidence is wanted or it is not. If it is wanted it should be given by the medical witness or it is worthless.

Seriously we think it is time that Mr. Troutbeck ceased from representing to juries that the whole agitation against his introduction of Dr. Freyberger to Battersea is due to fee-hunger. It is untrue. The legality of the London County Council's action in making a bargain over Mr. Troutbeck's appointment, the discretion with which Mr. Troutbeck carries out the London County Council's directions, and the necessity of having first-hand medical evidence if coroner's inquests are to prevent crimes—these are the points that he should deal with if he must make speeches about himself and his duties to his juries.

THE BACTERIOLOGY OF TUBERCULOSIS.

IN the *Archives Générales de Médecine* of Jan. 6th, Dr. Jaime Ferran of Barcelona publishes at considerable length some novel views on the bacteriology of tuberculosis. According to him, the sputum of tuberculous patients always contains not only Koch's bacillus but another to which he has given the name of *bacille phtisiogène, spermigène*, or *tuberculogène*, and which is mainly responsible for the infectivity and propagation of the disease. This new organism is nearly related to Koch's bacillus but presents some special features. It is abundant in the sputum, it grows freely in the ordinary culture media and at the ordinary temperature, not requiring an incubator, and it readily becomes a saprophyte, whereas Koch's bacillus is essentially parasitic. Inoculation with pure cultures of the new bacillus produces inflammation with cachexia and frequently proves fatal of itself. In the event of the animal surviving tubercles form in the inflamed tissues and the bacillus then begins to undergo modifications which end in its conversion into Koch's bacillus. At first it does not give the special colour reactions of Koch's bacillus and is easily stained by alcoholic solutions of gentian violet and methyl violet, but in course of time the bacilli are found to take the stain irregularly or even not at all and forms giving the colour reactions of Koch's bacillus make their appearance here and there. By successive inoculations of guinea-pigs with caseous pus and other products from previously inoculated cases these bacilli become converted into genuine examples of Koch's bacillus. Dr. Ferran says nothing as to the morphology or dimensions of his new bacillus. He attributes its conversion into Koch's bacillus to the action of bacteriolysins and agglutinins, and he suggests that in connexion with this new pathology of tuberculosis a prospect of serum treatment is opened up. His paper is illustrated with reproductions of 12 microscope fields, showing the pleural aspect of the guinea-pig's lung in health and in tuberculosis, the magnification being about 30 diameters.

THE AKOUPHONE MANUFACTURING COMPANY OF NEW YORK.

To the Editors of THE LANCET.

SIRS,—My attention having been called to the undue prominence given to my name in a pamphlet on Catarrhal Deafness published by this company, I trust that it is hardly necessary for me to state that this has occurred entirely without my knowledge or consent. I have requested the company to discontinue the use of my name.

I am, Sirs, yours faithfully,

Cavendish-square, W., Jan. 18th, 1903. DUNDAS GRANT.

AN ALLEGATION AND A REPLY.

THE account published in the *Staffordshire Sentinel* of Jan. 6th of an inquest held upon a child at Hanley in the first week in January has been brought to our attention. The mother of the deceased made a statement as to the impossibility of obtaining medical assistance. She stated that she called upon a medical man, Dr. J. W. Greenwood of Hanley, at eight o'clock in the evening and begged him to come and that he shut the door and would not talk to her. In answer to the coroner she is reported to have said: "I begged of him to come until he pushed me off and shut the door in my face." Dr. Greenwood was not in court. On the mother's evidence the coroner, in summing up, commented upon "some people as hard-hearted as flint" who "will be brought almost to tears if they see that Consols go down ½ per cent.," and in so doing entirely nullified some previous and sensible remarks about the necessity of judging no one unheard. Dr. Greenwood, who has felt keenly the unwarranted allegation against him of inhumanity, has written to us to say that the mother's evidence was inaccurate in the following particulars. It was midnight when she called and not eight o'clock. There was no violent pleading or begging. He listened to the unfortunate woman's statements but told her that being unwell he could not attend the case. He did not shut the door in her face because no door was ever open, the conversation having been conducted through a moveable panel. Dr. Greenwood points out, what we have insisted upon over and over again, that there is a limit to the amount of work that a man can do in one day, and he happened to have reached that limit at the time of the poor woman's visit. We have every sympathy with the mother. To a woman in her situation, whether agonised with apprehension or plunged in grief, facts wear a distorted face. But we do not think that the coroner should have allowed himself to use the words of implied reproach which have led to grave injustice being done. We are of opinion that he should take an early opportunity of stating that having heard both sides he withdraws any imputation that appeared to underlie his words. It should be stated that the coroner interfered to stop a juryman from proposing a vote of censure upon the medical men, Dr. Greenwood and another practitioner who also had been unable to attend the child.

MADAME SPITZNER'S GREAT MUSEUM.

MADAME SPITZNER was kind enough to send us a press view ticket for her "great museum." It is anatomical, anthropological, and ethnological. Madame Spitzner is evidently a high-minded lady, if we may judge from the introduction to the catalogue in which she says, "The love of science is often a means used by some to speculate upon public curiosity or to derive some benefit from some slight knowledge of anatomy.

THIS IS WHAT I WISH TO PREVENT."

We cannot say, however, that the museum is altogether what we should have expected from an unbiased perusal of the introduction. On entering we were greeted by the stony stare of a collection of wax heads representing members of the various nations. The first, according to the catalogue, was an Armenian. He was very nearly black and from personal experience of the Armenian at home we can confidently affirm that the members of that nation are not dark-complexioned by any means. No. 16 was called an Australian and the catalogue informed us that he came from "Jakeiti the finest and healthiest country in Australia." Here, again, we fancy that Madame Spitzner's ethnological expert is somewhat to seek. The head in question was adorned with large circular blocks of wood inserted in the lower lip and in the lobes of the ears, a practice which is, we believe, confined to the Botocudo, Lengua, Tobo, and Payagua Indians of South America, the Nayas of Queen Charlotte's Island, and a tribe in Central Africa mentioned by Livingstone. However,

the ethnology will be quite good enough for the class of inquirer like the gentleman who was so disappointed on going to Albania to find that the Albanians had not got pink eyes. Lying in a case in the centre of the room was an almost life-sized carefully executed model of a young lady in a frilled chemise undergoing the Cæsarean operation. The abdomen and the uterus were opened, but the uterus had not contracted. All the same its walls were rigid and seated in the interior like a water baby in a shell was a small fœtus of about seven months. Passing over such strange diseases as noemus masculaire, amieloplaxe tumour, and gummatum we were invited upstairs to an inner sanctum to which only adults are admitted. Here were shown, to adults only, the recent and remote effects of syphilis in both sexes, the series commencing from the virgin. Other exhibits included a forceps delivery, a normal confinement, and an embryological series of carefully made wax models. Another carefully made model was one showing the sympathetic system. On the whole, however, the exhibition is merely a catch-penny appeal to the prurient. It cannot be good for all and sundry to be able to see Cæsarean sections even inaccurately represented, or models of spermatozoa and the development of the fœtus. Even if the upper room is strictly confined to adults we doubt the wisdom of the exhibition. It *may* keep both men and women in the straight path to see a phagedænic vulva or penis, or a face rotting away, but we doubt it.

ZOX.

M.R.C.S. has written to us as follows:—"I enclose a powder which you may not have yet had experience of in your laboratory. A patient of mine having taken three such powders, one at 6 P.M., another at 8 P.M., and a third at midnight, woke his wife about 3 A.M., thinking that he was dying. He had great depression in the præcordial region, was pale, with cold sweats and muscular twitchings. An analysis of these powders, called 'Zox' powders, might be of service." We examined the substance sent to us, but not sufficient material reached us to enable us to say definitely which antipyretic or analgesic the powder contained. It is very clearly an anilin synthetic, either antifebrin or phenacetin, but not antipyrin, and we need hardly say that its ingestion without medical direction is dangerous. The directions on the box say that one powder can be taken in a cup of anything hot and that the dose can be repeated in two hours if necessary. The patient appears not to have followed the instructions on the box.

THE PROGRESSIVE MEDICAL ALLIANCE FOR MEN AND WOMEN.

MR. J. E. BELL, who has had one of the circulars of this impudent and mischievous fraud thrust upon him in the street, remarks: "I should have thought that even in this dear old-fashioned country the police might have powers to prevent such a swindle." There is, unfortunately, in this country no law to prevent quackery, all that the Medical Act does to protect the public being to make it a punishable offence to assume medical titles. Probably there are individuals who may have the right to complain of this alliance, who could obtain the punishment of the promoters, but men "who have seriously debilitated their systems" and women "suffering from any of the ills peculiar to the sex" (these being the clients to whom the Progressive Medical Alliance particularly appeals) are hardly likely to air their grievances in a public law-court—hence the immunity enjoyed by these and similar quacks.

JOHN JAMES JONES.

A CORRESPONDENT has forwarded to us an advertisement which was delivered by post at his house and which emanates from John James Jones of the Manor House, Sandgate, Kent. This person, who has been exposed over and over again in the columns of *Truth*, has the insolence to say: "Thinking you may have patients suffering from phthisis who may be glad to know of our sanatoria, we have recently visited 25 sanatoria for the 'Open-air Treatment' of phthisis on the continent. ..... We have been and are now making great improvements which will enable us to carry out the treatment, &c., similar to that adopted on the Continent." Then follows a list of charges. We are pleased to be able to refer our correspondent and any other medical man whom it may interest to the following issues of *Truth*: Nov. 6th, 1902, p. 1109; Dec. 18th, 1902, p. 1520; and Jan. 22nd 1903, p. 205.

MEDICAL MISSIONARY WORK.

To the Editors of THE LANCET.

SIRS,—In reply to your correspondent "E. B." in THE LANCET I beg to inform him that almost all missionary societies send out medical missionaries. The Church Missionary Society has 71 on its roll, the Society for the Propagation of the Gospel 15, and the Presbyterian and Nonconformist societies all make use of this method of missionary work. The title of "medical missionary" is, of course, only given to those medical men and women who are legally qualified to practise medicine and surgery. With regard to the requirements of the different societies: (1) professional; and (2) spiritual. The professional work of the medical missionary varies very much. Some will perhaps get more operating than any surgeon in London and must be qualified accordingly; in other posts the man or woman with the minimum legal qualification would be able to carry on the work. Surgery—general and especially eye—is of far greater importance than medicine in the mission field. As to the requirements of the different societies from the spiritual point of view the practice varies. The Church Missionary Society and various other societies recognise a medical missionary not only as a medical man but as a missionary. He is responsible for the superintendence of the medical mission as an agency for spreading Christianity. He must therefore be a member of the Church of England if he wishes to join the Church Missionary Society or the Society for the Propagation of the Gospel, a Presbyterian, Baptist, or Wesleyan if he goes out in connexion with their societies. Your columns are hardly the place for a more detailed description of the requirements of a medical missionary in this respect. I shall be glad to answer any further questions if your correspondent will write to me direct.

I am, Sirs, yours faithfully,

HERBERT H. LANKESTER, M.D. Lond.,
Physician to C.M.S. and Secretary to Medical Committee C.M.S.

Church Missionary Society, Salisbury-square, London, E.C., Jan. 13th, 1903.

F. G. B. will find a note on the composition of heroin that may be useful to him in our issue of Dec. 3rd, 1898, p. 1486. In the same issue our Berlin correspondent gives the German experience of heroin. An annotation in THE LANCET of Jan. 20th, 1900, p. 180, deals with the value and dosage of the drug in certain cases; and in our issue of May 18th, 1901, p. 1410, there is a further note on the heroin preparations.

E. H. R.—The fact that such instruments have their legitimate use makes it difficult for us to denounce the advertisements. Of course they are offensive.

R. U. B.—In our opinion the fees, no other arrangement having been made, should go to the lecturer.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.) London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (28th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

THURSDAY (29th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (31st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (26th).—ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Hanover-square, W.).—7 P.M. Council. 8 P.M. Casual Communications:—Mr. S. Read: Improved Expansion and Retraction Plates.—Mr. M. Smale: (1) Models of a Case of Replantation; (2) A Composite Odontome.—Mr. J. B. Parfitt: A New Amalgam Balance. Paper:—Mr. A. Lane: Some Points in the Mechanics of the Jaws.

MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8 P.M. Council Meeting. 8.30 P.M. Clinical Meeting. Cases:—Dr. J. W. Carr: Chronic Joint Disease in a Child.—Mr. C. B. Keetley: Undescended Testes after Operation.—Dr. H. C. Pope: Venous and Lymphatic Nævus of the Face.—Mr. T. H. Openshaw:

Two Cases of Congenital Dislocation of the Hip, one treated by the Manipulation Method of Lorenz and the other by the Open Method of Hoffa.—Mr. J. Sherren: (1) Ankylosis of Hip following Gonorrhœal Arthritis; (2) Secondary Syphilitic Synovitis of Elbows.—Dr. F. J. Poynton: Case of Atavism.—Mr. J. Hutchinson, jun.: Case of Macrodactylism.

TUESDAY (27th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Papers:—Mr. B. G. A. Moynihan: The Operative Treatment of Gastric and Duodenal Ulcers.

WEDNESDAY (28th).—HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8.30 P.M. Pathological Evening.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover-square, W.).—5.30 P.M. Paper:—Dr. Buckley (Buxton): Local Factors influencing Climate, with Special Reference to Subsoil.

THURSDAY (29th).—OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos street, W.).—8 P.M. Card Specimens:—Mr. L. Warner, Mr. F. A. C. Tyrrell, Major Yarr, and Mr. E. T. Collins. 8.30 P.M. Papers:—Mr. J. H. Parsons: Primary Extra-dural Tumours of the Optic Nerve.—Mr. T. Snowball: Ossification of the Choroid.—Mr A. S. Morton and Mr. J. H. Parsons: Hyaline Nodules on the Optic Disc.—Mr. L. Warner: Two Cases of Tumour of the Optic Nerve in one of which Krölein's Operation was Performed with Preservation of the Eye.

FRIDAY (30th).—ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND (Westminster Hospital Medical School, S.W.).—4 P.M. Ordinary Meeting. Papers:—Mr. F. G. Parsons, Mr. Cameron, and Mr. B. Harman.

BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION (11, Chandos-street, Cavendish-square, W.).—3.45 P.M. Cases:—The President, Dr. Abercrombie, Mr. Nourse, Mr. Stuart-Low, and others. Paper:—Dr. J. Horne.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (26th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Clinique. (Skin.) 5.15 P.M. Dr. K. Grube: Hydro-therapeutics and Balneotherapeutics.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Lloyd: Anæsthetics in Abdominal Cases.

TUESDAY (27th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. E. Squire: Clinique. (Medical.) 5.15 P.M. Dr. D. Grant: The Diagnosis and Treatment of the Various Forms of Chronic Non-suppurative Inflammation of the Middle Ear.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. C. Williams: X Rays in Medicine and Surgery.

UNIVERSITY OF LONDON (Physiological Laboratory).—5 P.M. Dr. W. D. Halliburton: On the Chemistry of Muscle and Nerve. (Lecture on Advanced Physiology.)

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury).—3.30 P.M. Dr. Tooth: Cranial Nerves.

WEDNESDAY (28th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. F. C. Wallis: Clinique. (Surgical.) 5.15 P.M. Dr. W. Lewis Jones: Recent Advances in Medical Electricity.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. McAdam Eccles: Surgical Anatomy.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Mr. S. Boyd: Pleural Effusions and their Surgical Treatment. (Post-Graduate Lecture.)

THURSDAY (29th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Hutchinson, jun.: Clinique. (Surgical.) 5.15 P.M. Dr. W. S. Colman: The Nervous Manifestations of Rickets.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. A. Baldwin: Treatment of Some Injuries and Emergencies.

UNIVERSITY OF LONDON (Physiological Laboratory).—5 P.M. Dr. T. G. Brodie: On the Circulation. (Lecture on Advanced Physiology.)

CHARING CROSS HOSPITAL.—4 P.M. Wr. Wallis: Demonstration of Surgical Cases. (Post-Graduate Course.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Penrose: Demonstration of Selected Cases.

FRIDAY (30th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. M. Gunn: Clinique. (Eye.) 5.15 P.M. Dr. H. W. G. MacLeod: House Ventilation and Drainage.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Beddard: Angina Pectoris.

UNIVERSITY OF LONDON (Physiological Laboratory).—5 P.M. Dr. A. D. Waller: On the Action of Anæsthetics and Narcotics. (Lecture on Advanced Physiology).

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury).—3.30 P.M. Dr. Ormerod: Disseminated Sclerosis.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1902, which was completed with the issue of Dec. 27th, and the Title-page to the Volume, were given in THE LANCET of Jan. 3rd.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 22nd, 1903.

Date	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Jan. 16	30·33	S.E.	...	49	33	27	Fzn.	28	Fine
,, 17	30·13	S.E.	...	45	35	27	Fzn.	29	Overcast
,, 18	30·14	E.	0·26	45	42	29	33	35	Foggy
,, 19	30·17	S.E.	0·06	45	45	35	41	41	Foggy
,, 20	30·26	S.E.	0·05	52	46	41	42	42	Foggy
,, 21	30·26	S.E.	...	47	45	40	40	41	Foggy
,, 22	30·12	S.W.	...	51	46	41	42	43	Cloudy

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